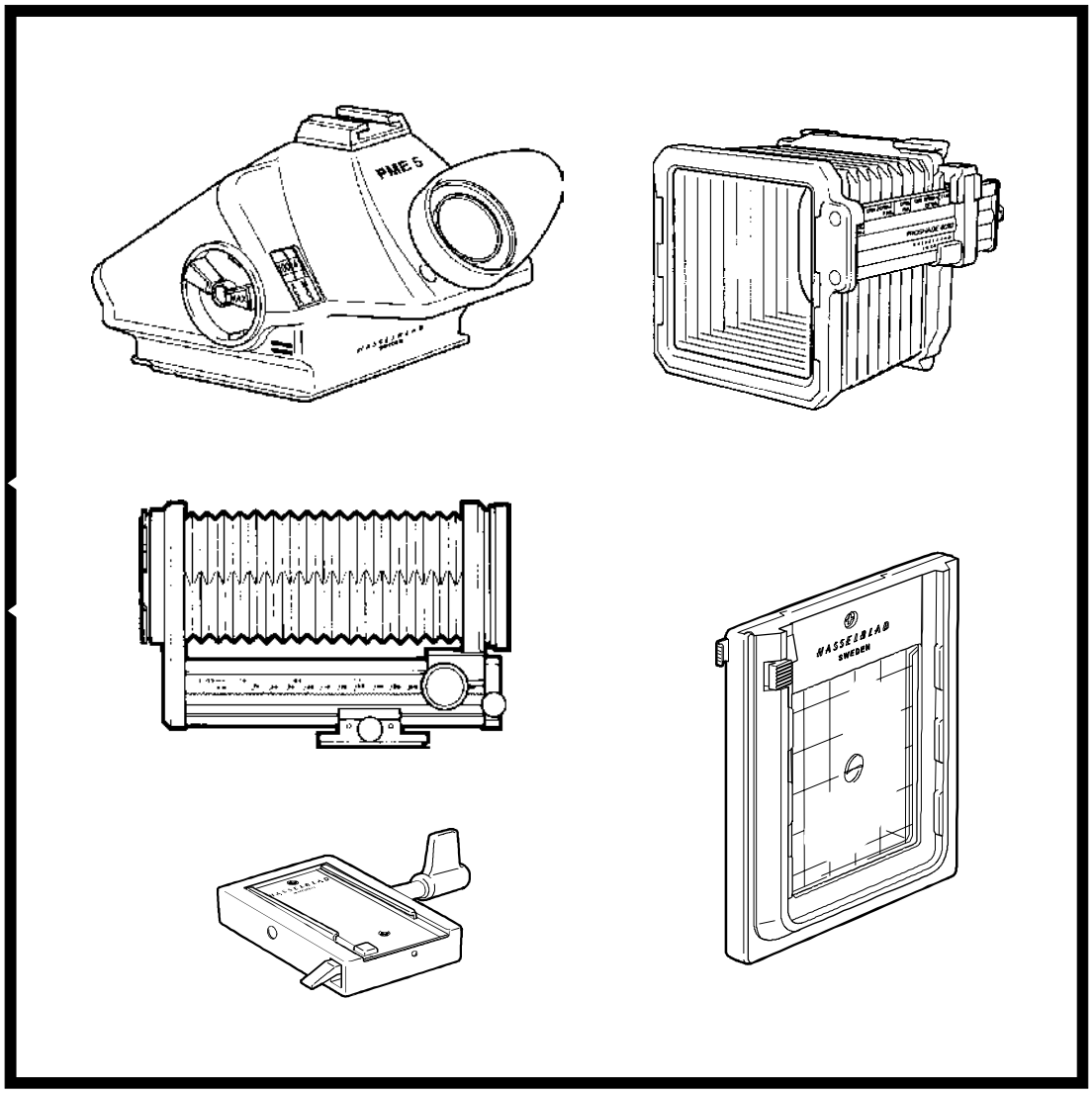
HASSELBLAD

Service Manual
Accessories III



May 1993

Victor Hasselblad AB

Göteborg Sweden

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Accessories III

1.

1. Meter prism viewfinder PME5
2. Prism viewfinder PM5
3. Proshade 6093
4. Focusing screen adapter SWC
5. Tripod quick-coupling
6. Meter prism viewfinder PME51
7. Prism viewfinder PM90
8. Converter 2XE
9. Extension tube 16E, 32E, 56E
10. Standard focusing hood
11. Focucing hood E
12. Proshade 6093-T
13. FlexBody
14. Reflex viewfinder RMfx
15. Magnifying hood HM2
16. Tripod quick-coupling S
17. Teleconverter 1.4XE
18. Meter prism viewfinder PME90
19. Winder CW
20. D-Flash 40
21. Snap-lock flash grip
22. ArcBody
23. Focusing screen adapter, standard

Accessories III

2.

24. Teleconverter APO1.4XE
25. Zoom lens FE 4.8/60 - 120 mm
26. View magnifier
27. Winder F
28. Extension tube 16, 32, 56 TCC
29. Prism viewfinder PM45
30. Meter prism viewfinder PME45
31. View magnifier PM45/PME45

Accessories 1.

15/93	Meter prism viewfinder PME90
18/93	Meter prism viewfinder PME, PME3 and PME5
19/93	Meter prism viewfinder PME51
21/95	Proshade 6093-T
06/96	Prism viewfinder PM5 and PME51
07/96	FlexBody
13/96	D-Flash 40
15/96	Winder CW
16/96	Meter prism viewfinder PME90
02/97	IR Remote control and Winder CW
03/97	Winder CW
08/97	Prism viewfinder PM5 and PME51
09/97	Prism viewfinder PM5 and PME51
13/97	Winder CW
18/97	Winder CW
21/97	FlexBody
22/97	FlexBody focusing screen
23/97	Tripod quick-coupling S
30/97	ArcBody
32/97	Winder CW
02/98	D-Flash 40
04/98	IR Remote control
05/98	Snap lock flash grip

Accessories 2.

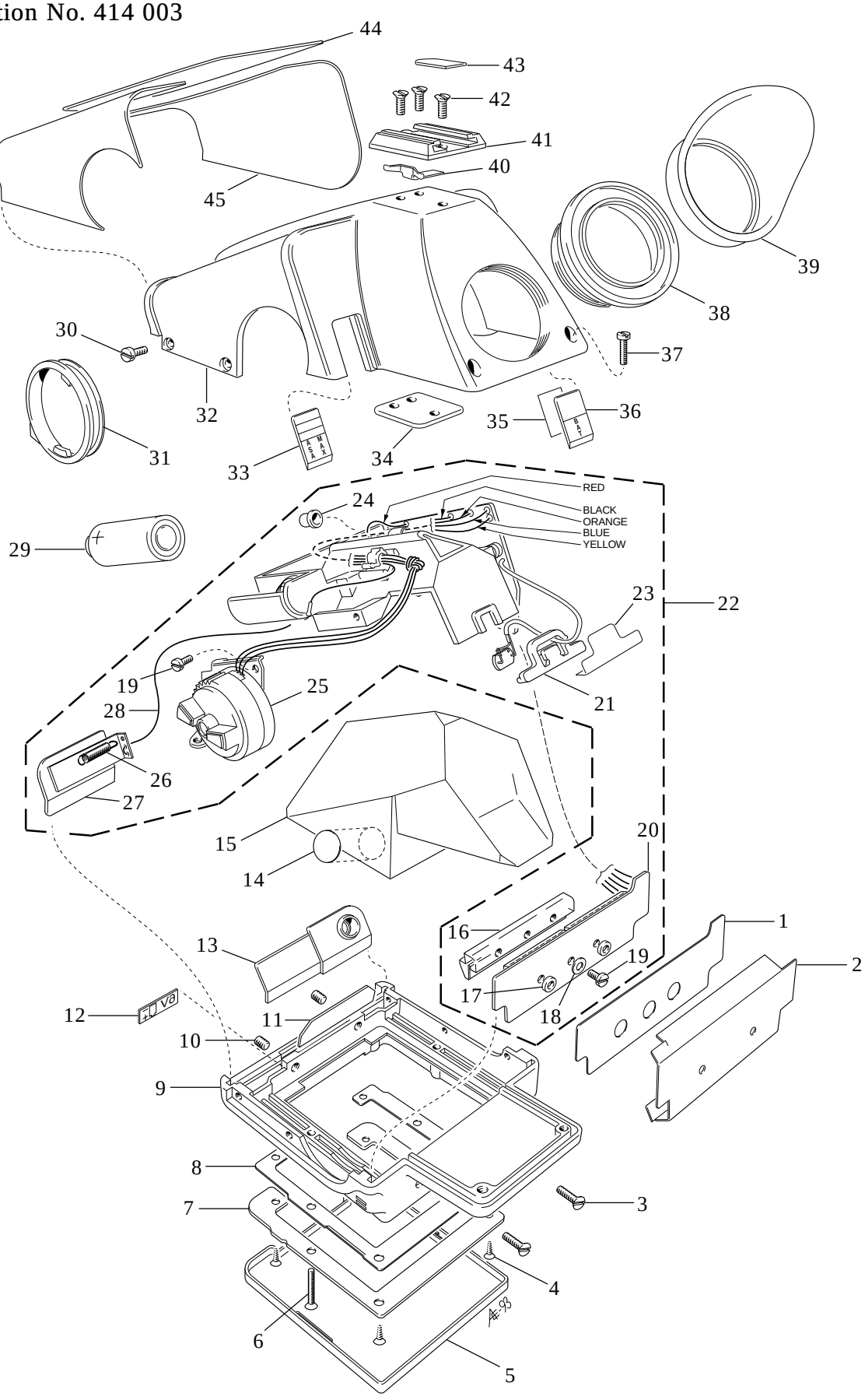
06/98	FlexBody
10/98	ArcBody and Grandagon lenses
11/98	Teleconverter APO 1.4XE
11/99	Zoom lens FE 4.8/60 - 120 mm
12/99	View magnifier
01/00	New CD-ROM - Version 1.2
03/00	Prism viewfinder PM90
04/00	Prism viewfinder PM45
06/00	Meter prism viewfinder PME45
07/00	Meter prism viewfinder PME45 and VHABSTS
09/00	New CD-ROM - Version 1.3
12/00	Winder CW
04/01	New CD-ROM - Version 2.0

Meter prism viewfinder PME5

Code No. 42295

Construction No. 414 003

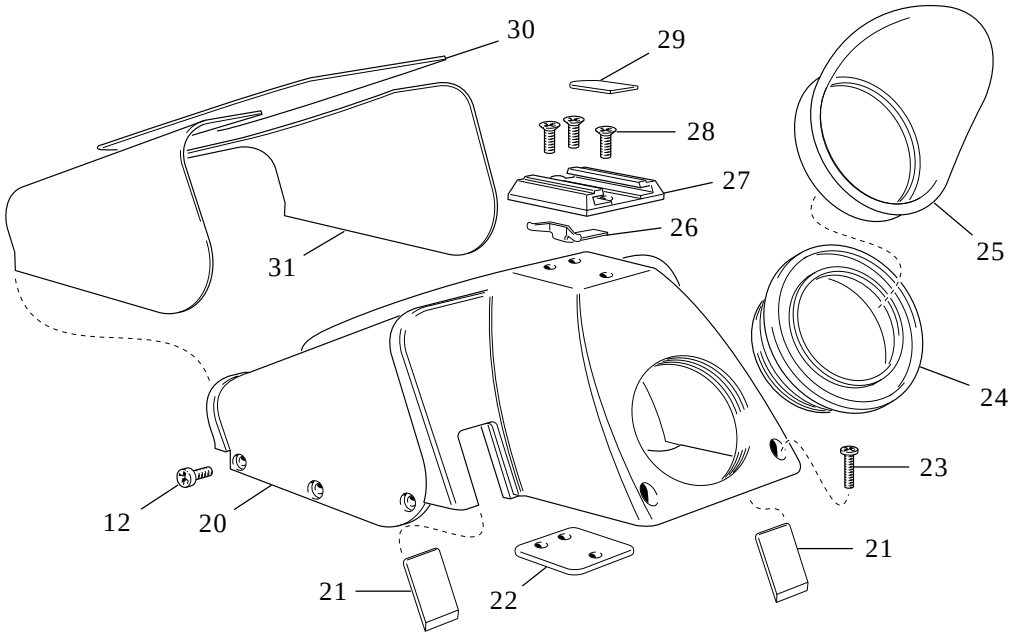
Link to: VHABSTS



Meter prism viewfinder PME5

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	414 500	Insulation plate	
2	1	414 497	Light shield	
3	2	823 679	Screw	
4	4	826 009	Screw	
5	1		Cover	Sales code No. 52191
6	2	823 685	Screw	
7	1	414 360	Engraved frame	Please state serial No.
8	1	414 361	Shim	
9	1	414 362	Frame	
10	2	825 862	Screw	
11	1	414 431	Shim	
12	1	414 417-01	Battery sign	
13	1	414 407	Cover	
14	1	13 455	Disc	
15	1	414 325	Prism	
16	1	414 104	Display prism	
17	2	810 524	Spacer	
18	1	810 540	Washer	
19	2	820 650	Screw	
20	1	414 044	Display board	
21	1	414 366	Photo cell holder	
22	1	414 022	Metering unit, compl.	
23	1	414 491	Light shield	
24	1	414 413	Button	
25	1	414 106	Indicator, compl.	
26	1	814 523	Spring	
27	1	414 102	Battery lid	
28	1	414 454	Cable	
29	1		Battery	6 volt, type PX28
30	5	820 630	Screw	
31	1	414 401	Ring	
32	1	414 322	Shell	
33	1	414 410	Window	
34	1	414 403	Plate	
35	1	414 499	Diffusor	
36	1	414 411	Window	
37	2	820 670	Screw	
38	1		Ocular	Sales code No. 42412
39	1	414 424	Rubber eyepiece	
40	1	414 434	Plate spring	
41	1	414 108	Shoe	
42	3	824 604	Screw	
43	1	405 412	Insulating plate	
44	1	414 421	Leather	
45	1	414 420	Leather	

Prism viewfinder PM5



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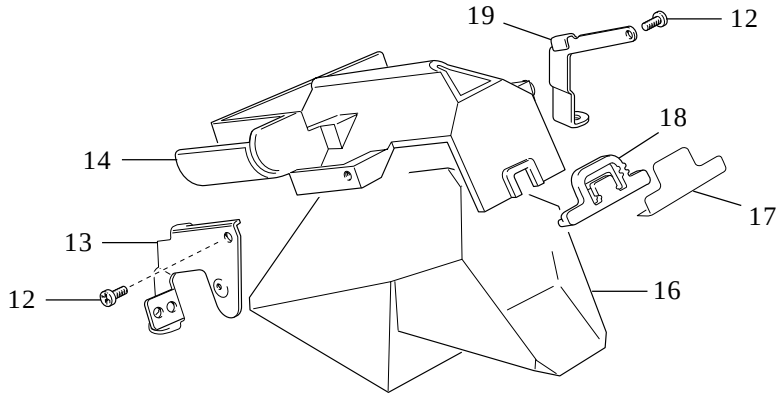
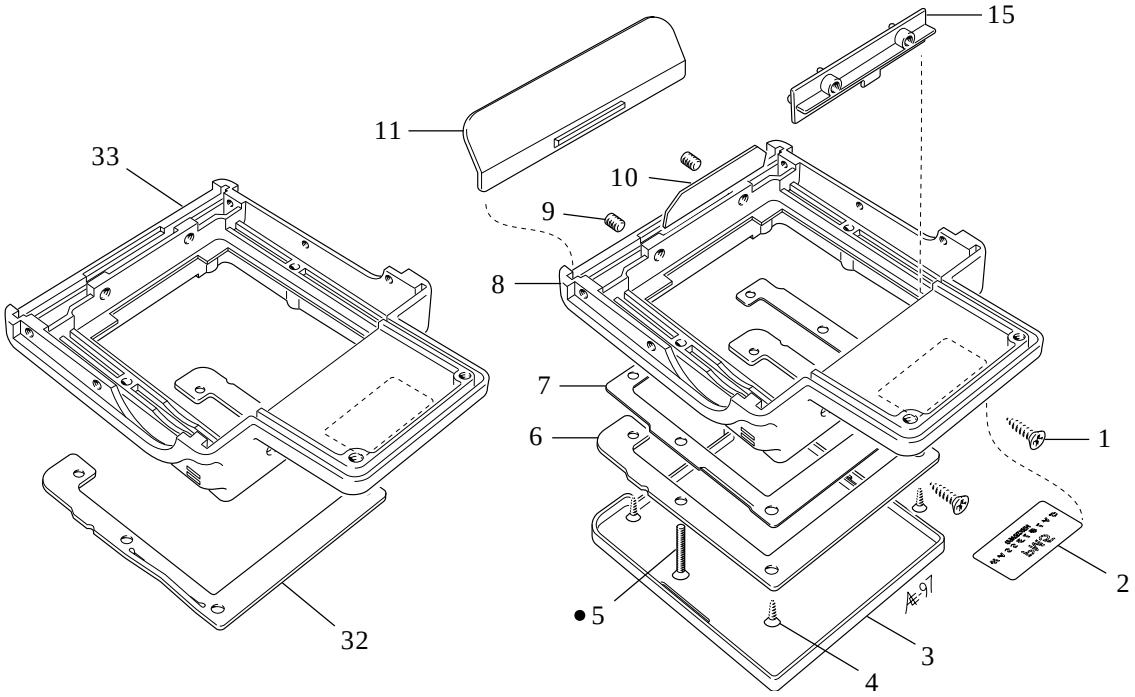




Prism viewfinder PM5

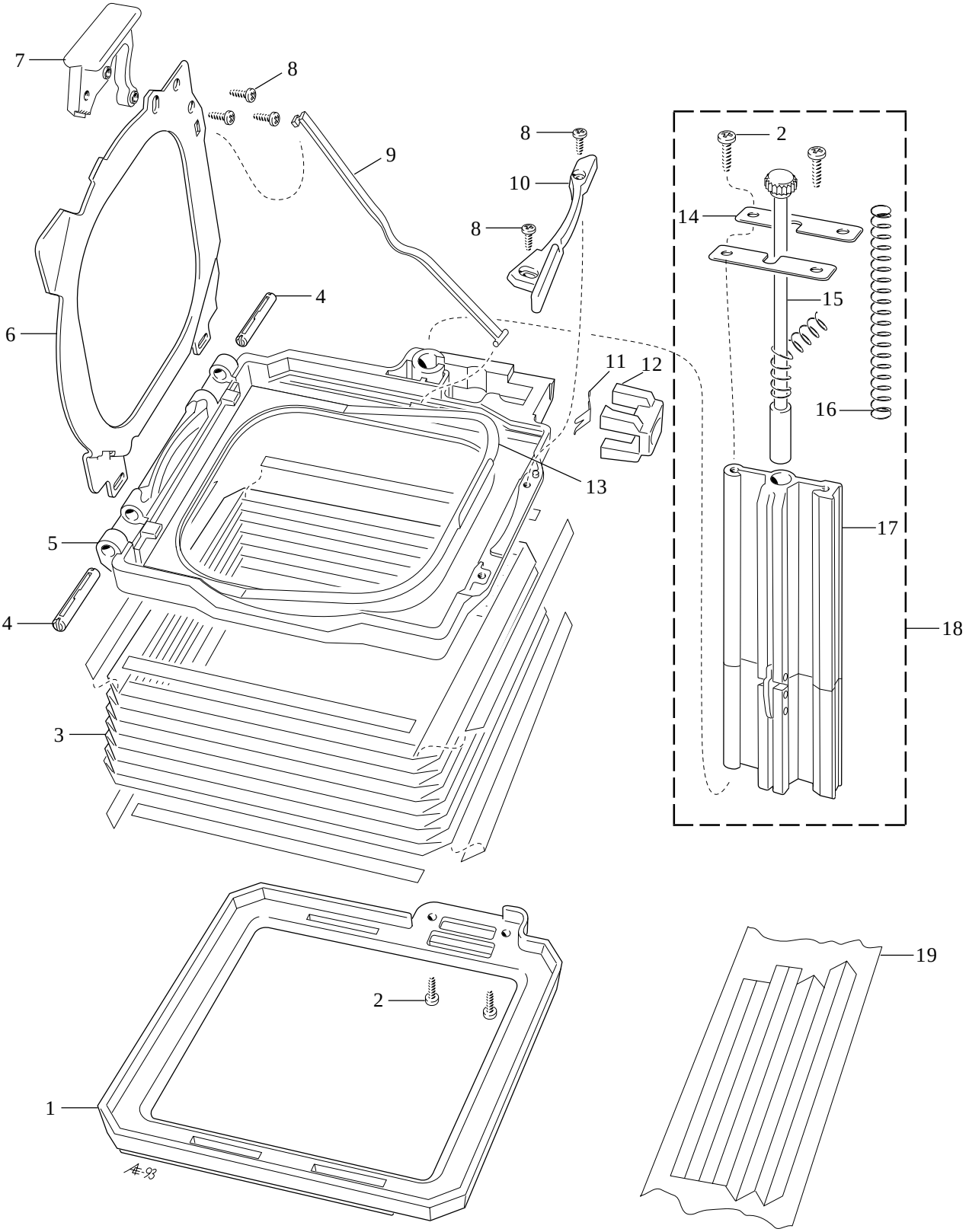
Pos No.	Pcs	Spare Part No.	Description	Remark
1	2	826 007	Screw	
2	1	414 566	Name plate	
3	1		Cover	Sales code No. 52191
4	4	826 009	Screw	
5	2	823 685	Screw	
6	1	414 360	Engraved frame	Please state serial No.
7	1	414 361	Shim	
8	1	414 362	Prism frame	
9	2	825 862	Screw	
10	1	414 431	Shim	
11	1	414 350	Cover	
12	7	830 440	Screw	
13	1	414 345	Bracket	
14	1	414 342	Prism cover	
15	1	414 368	Support	
16	1	414 325	Prism	
17	1	414 491	Light shield	
18	1	414 366	Holder	
19	1	414 404	Bracket	
20	1	414 330	Shell	
21	2	414 472	Cover	
22	1	414 403	Plate	
23	2	830 460	Screw	
24	1		Ocular	Sales code No. 42412
25	1	414 424	Rubber eyepiece	
26	1	414 434	Plate spring	
27	1	406 110	Shoe	
28	3	829 660	Screw	
29	1	405 412	Insulating plate	
30	1	414 421	Leather	
31	1	414 471	Leather	

Serial No. 401EU1001 - forwards

32	1	414 387	Engraved frame	Please state serial No.
33	1	414 800	Prism frame	

Proshade 6093

Code No. 40738
Construction No. 415
334

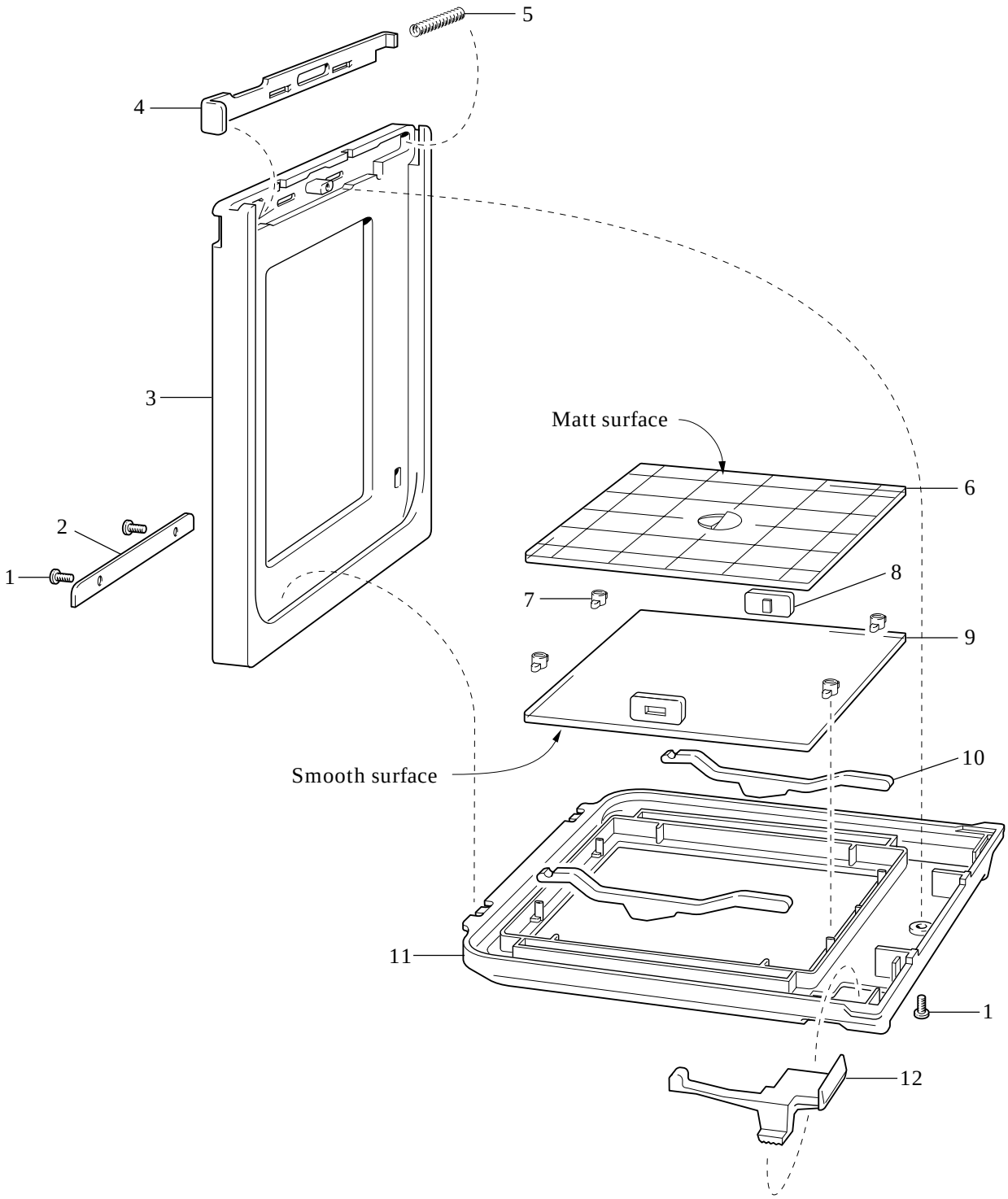


Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	415 371	Front frame	
2	4	415 419	Screw	
3	1	415 370	Bellows	
4	2	415 446	Joint	
5	1	415 335	Rear frame	
6	1	415 336	Interm. frame	
7	1	415 444	Catch	
8	5	826 010	Screw	
9	1	415 445	Link coupling	
10	1	415 384	Locking arm	
11	1	415 410	Spring	
12	1	415 440	Brake	
13	1	415 447	Lifter	
14	2	415 408	Plate	
15	1	415 385	Locking shaft	
16	1	815 857	Spring	
17	1	415 369	Rail	
18	1	415 386	Rail, compl.	
19	1	415 454	Tape	

Focusing screen adapter SWC

Code No. 41050

Construction No. 402 348



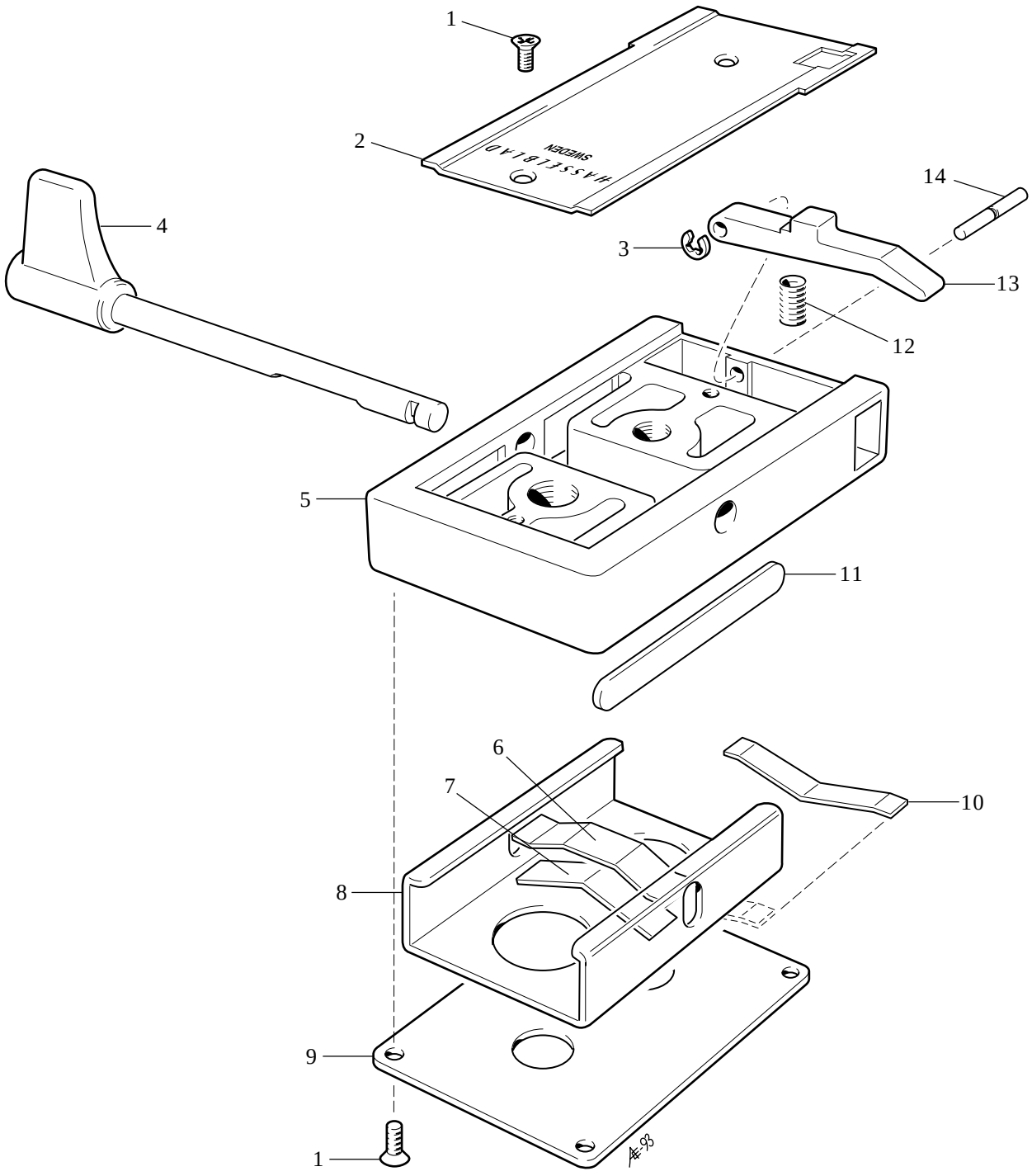
Focusing screen adapter SWC

Pos No.	Pcs	Spare Part No.	Description	Remark
1	3	830 440	Screw	
2	1	402 476	Holder	
3	1	402 324	Frame	
4	1	402 475	Locking arm	
5	1	815 808	Spring	
6	1	413 321	Focusing screen	
7	4	402 477	Spacer	
8	2	402 480	Spacer	
9	1	413 421	Fresnel lens	
10	2	402 478	Spring	
11	1	402 302	Rear plate	
12	1	402 325	Locking arm	

Tripod quick-coupling

Code No. 45130

Construction No. 406 002

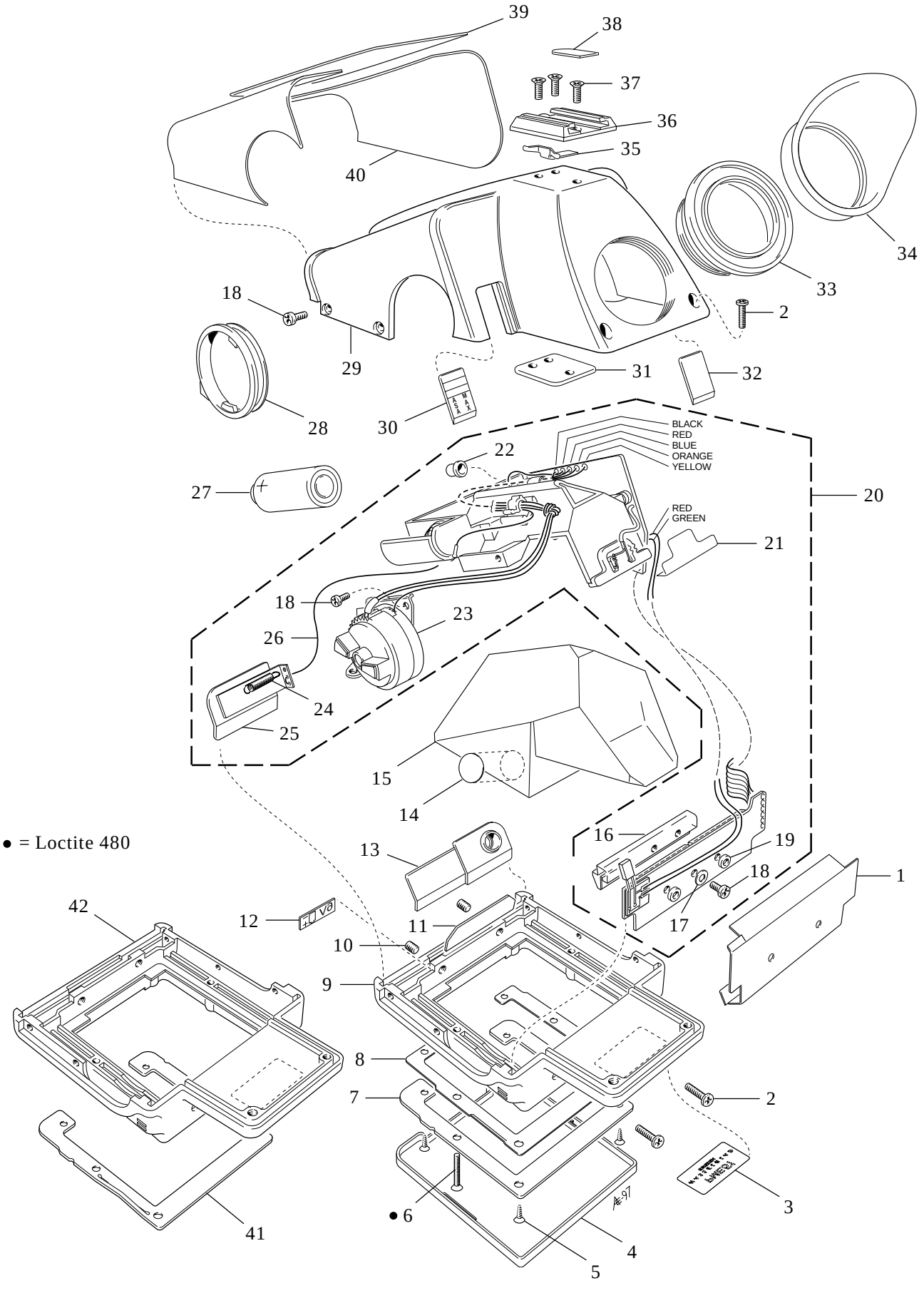


Tripod quick-coupling

Pos No.	Pcs	Spare Part No.	Description	Remark
1	6	829 640	Screw	
2	1	406 402	Plate	
3	1	817 115	Clip	
4	1	406 344	Handle	
5	1	406 301	Base	
6	1	406 410	Spring	
7	1	406 409	Spring	
8	1	406 406	Guide	
9	1	406 405	Plate	
10	1	406 408	Spring	
11	1	406 407	Plate	
12	1	815 803	Spring	
13	1	406 342	Pawl	
14	1	406 404	Pin	

Meter prism viewfinder PME51

Link to: VHABSTS



Meter prism viewfinder PME51

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	414 497	Light shield	
2	4	830 460	Screw	
3	1	414 567	Name plate	
4	1		Cover	Sales code No. 52191
5	4	826 009	Screw	
6	2	823 685	Screw	
7	1	414 360	Engraved frame	Please state serial No.
8	1	414 361	Shim	
9	1	414 362	Prism frame	
10	2	825 862	Screw	
11	1	414 431	Shim	
12	1	414 417	Battery sign	
13	1	414 407	Cover	
14	1	13 455	Disc	
15	1	414 325	Prism	
16	1	414 104	Display prism	
17	1	810 540	Washer	
18	7	830 440	Screw	
19	2	810 524	Spacer	
20	1	414 022	Metering unit, compl.	
21	1	414 491	Light shield	
22	1	414 413	Button	
23	1	414 106	Indicator, compl.	
24	1	814 523	Spring	
25	1	414 102	Battery lid	
26	1	414 454	Cable	
27	1		Battery	6 volt, type PX28
28	1	414 401	Ring	
29	1	414 322	Shell	
30	1	414 410	Window	
31	1	414 403	Plate	
32	1	414 472	Cover	
33	1		Ocular	Sales code No. 42412
34	1	414 424	Rubber eyepiece	Standard
	1	414 429	Rubber ring	Optional
35	1	414 434	Plate spring	
36	1	406 110	Shoe	
37	3	829 660	Screw	
38	1	405 412	Insulating plate	
39	1	414 421	Leather	
40	1	414 420	Leather	

Serial No. 402EU1001 - forwards

41	1	414 387	Engraved frame	Please state serial No.
42	1	414 800	Prism frame	

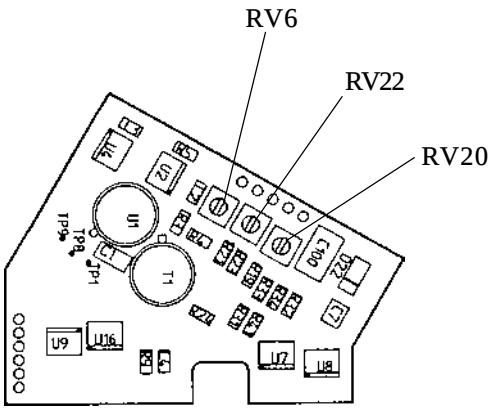
Meter prism viewfinder PME51
Calibration

Use the following equipment for calibration work:

Light box
Test shell 901654
Camera body (500 or 2000)
Planar lens 2.8/80
Focusing screen Acute Matte
(Hasselblad Service Test System)

NOTE!
Using a 203FE/205FCC/TCC camera body will give an error of approx. 0.1 EV due to the partially transparent mirror and is therefore normally not recommended.

CAUTION!
When handling the circuit board a grounded bench mat and a wrist strap must be used to prevent ESD damage.



NOTE!
Potentiometer RV20 and RV22 are pre-adjusted and sealed. They must not be touched.

Setup for calibration:

PME51	ISO/ASA	100	
	Max f	2.8	
Planar 2.8/80	Aperture	2.8	
	Focus	∞	
Light box*	EV	12	See page 6:2
	K-factor	1.04	
Light box**	LL	9	

Attach the test shell 901654 and install a battery.
Fit the finder to the camera body.
Connect the camera body to the light box.
Adjust the potentiometer RV6 so that LED 11 is lighting up and LED 12 is twinkling (0.25 EV accuracy).

* Light box type "Kyoritsu" with fixed light levels in EV.

** Light box type "Spectron" with infinitely variable light levels in LL.

Meter prism viewfinder PME51
Calibration

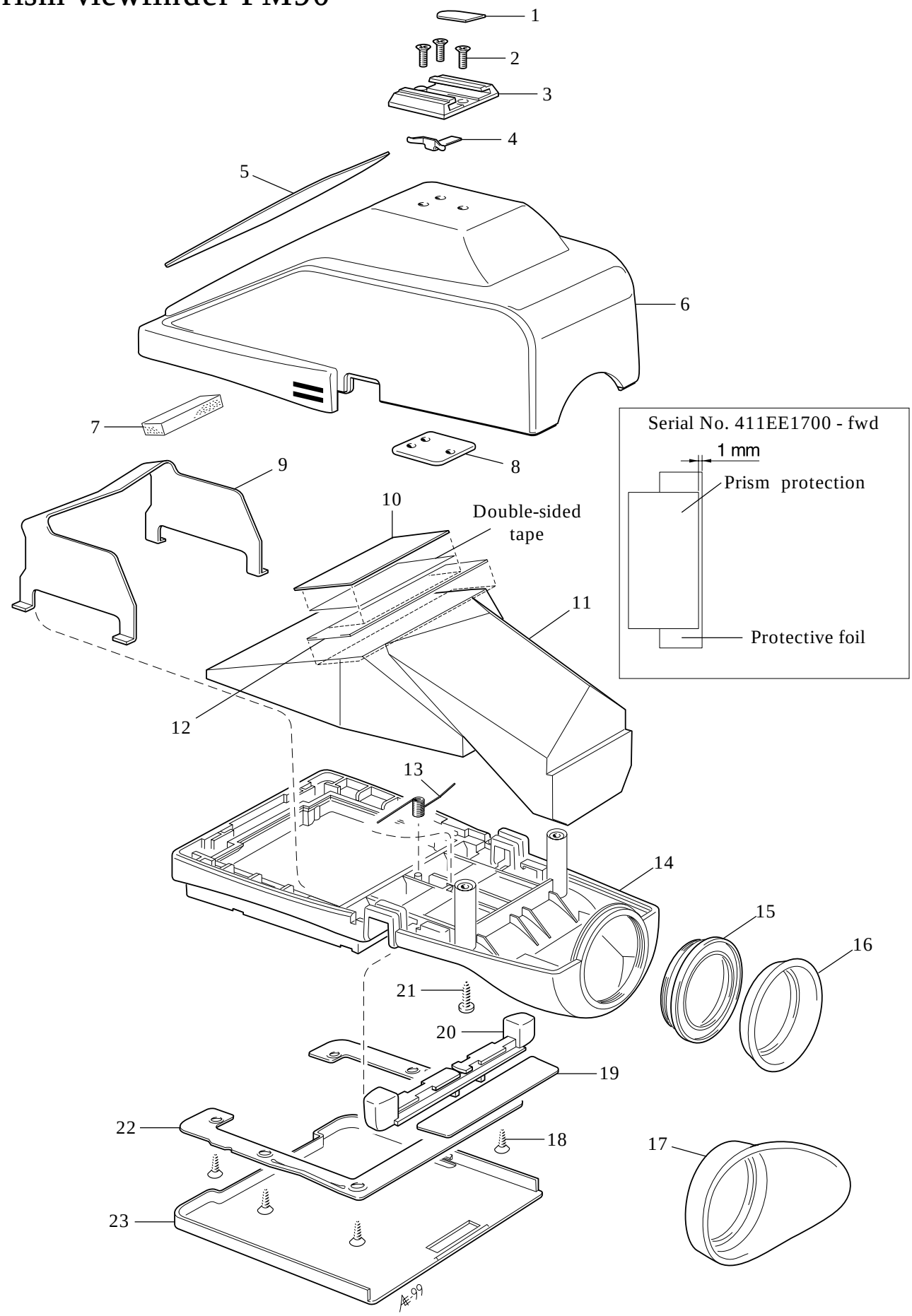
Hasselblad Service Test System & Kyoritsu Light box

In the present version of the Service Test System (Ver. 1.5/1.6) the message "Set light source to K=1.3" is displayed in the PME mode when using a Kyoritsu light box.
This to get suitable light levels equivalent to 1/2stops when calibrating the PME, PME3 and PME5.

For the PME51 a light level equivalent to a 1/4 or 3/4 stop must be used.
Therefore measure the light box EV 12 setting with the test system. During the measurement try different K-factors until an acceptable 1/4 or 3/4 level is reached. (Either one can later on be used for calibration).

PME51 calibration should then be made according to the instruction, Calibration 6:1

Prism viewfinder PM90

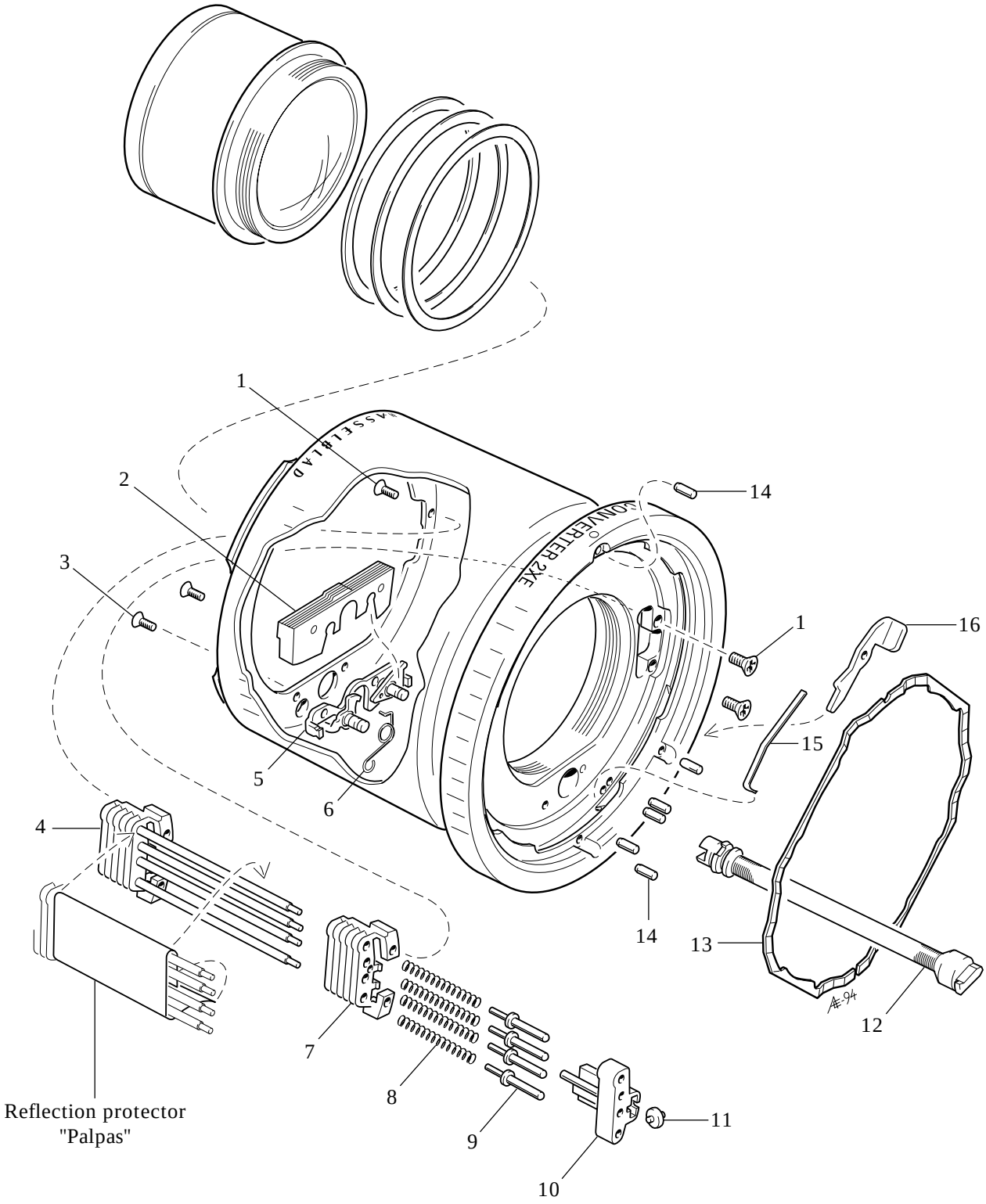


Prism viewfinder PM90

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	405 412	Plate	
2	3	829 660	Screw	
3	1	406 110	Shoe	
4	1	414 434	Plate spring	
5	1	414 550	Leather	
6	1	414 492	Shell	
7	1	414 576	Pad	
8	1	414 403	Plate	
9	1	414 383	Holder	
10	1	414 553	Prism protection	
11	1	414 331	Prism	
	1	414 332	Prism	Serial No. 411EE1700 - fwd
12	1	415 468	Protective foil	Serial No. 411EE1700 - fwd
13	1	816 931	Spring	
14	1	414 493	Frame	
15	1	414 561	Ocular	
16	1	414 429	Rubber ring	
17	1	414 424	Rubber eyepiece	
18	6	826 022	Screw	
19	1	414 560	Name plate	
20	1	414 385	Magazine catch	
21	2	826 014	Screw	
22	1	414 387	Engraved frame	Please state serial No.
23	1		Cover	Sales code No. 52191

Converter 2XE

Sales code No. 20605
Construction No. 435 007

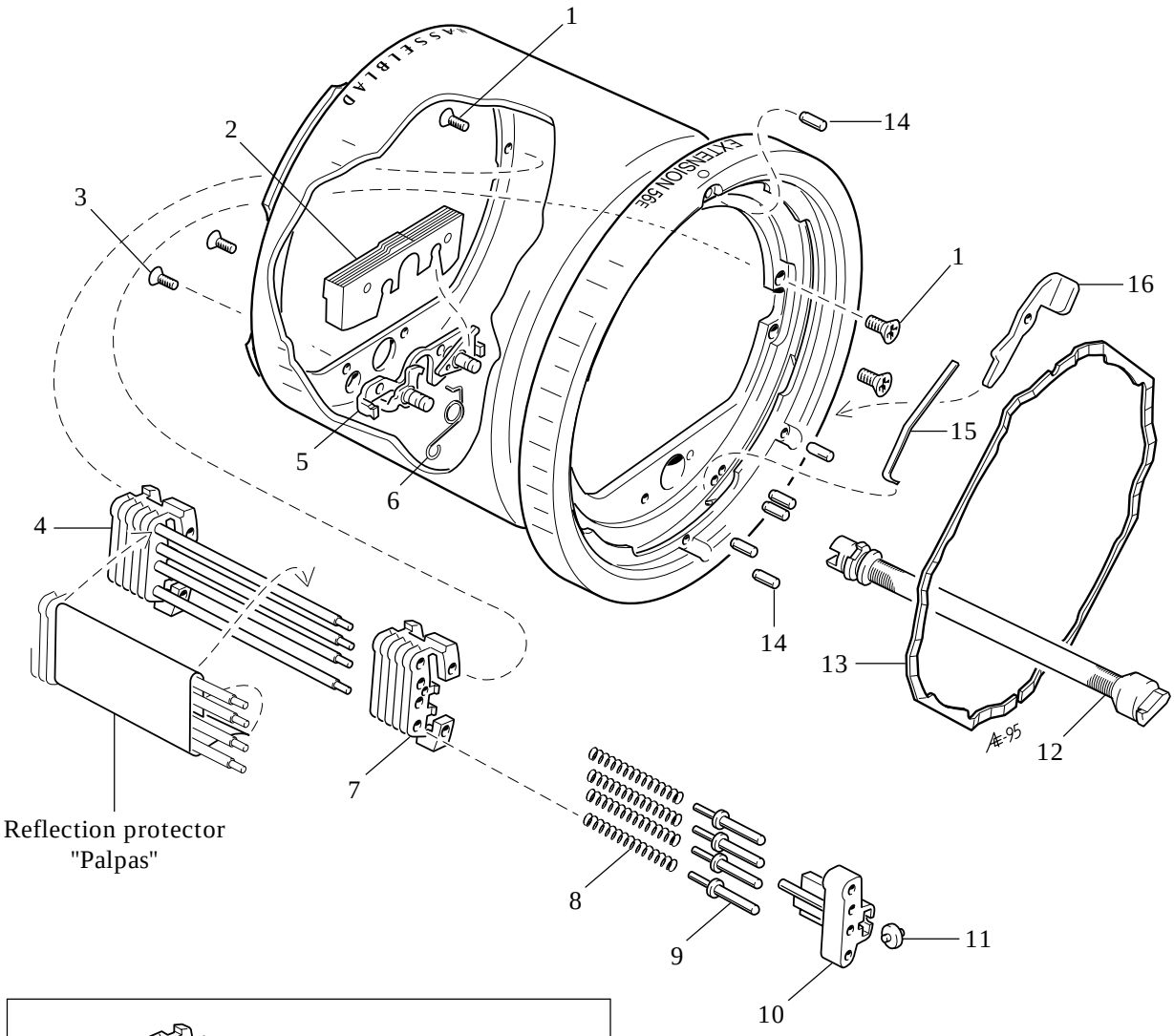


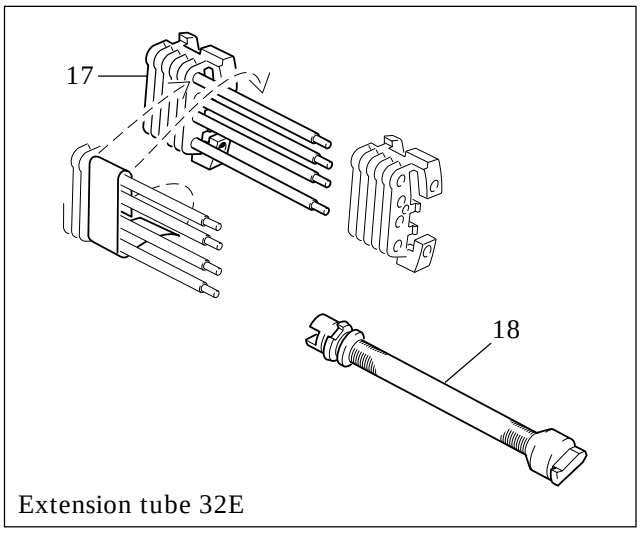
Converter 2XE

Pos No.	Pcs	Spare Part No.	Description	Remark
1	3	826 002	Screw	
2	1	435 342	Cover	
3	2	829 325	Screw	
4	1	435 110	Holder	
5	1	435 041	Locking mechanism	Incl. 816 304
6	1	816 304	Spring	
7	1	435 353	Holder	
8	4	815 513	Spring	
9	4	435 402	Contact pin	
10	1	435 111	Holder	
11	1	435 404	Roller	
12	1	435 109	Key	
13	1	403 346	Spring	
14	6	812 311	Pin	Alternatively 812 313/314
15	1	816 929	Spring	
16	1	435 341	Catch	
			Optics	Not available as spare part
			Housing	Not available as spare part

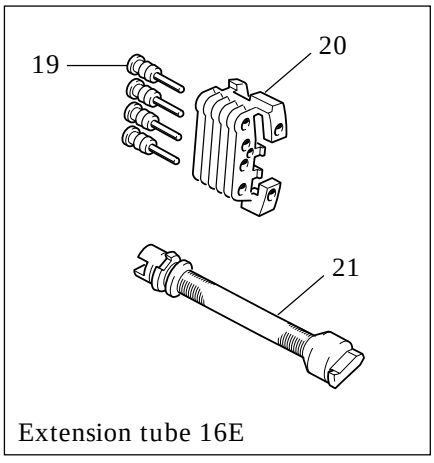
Extension tube 16E, 32E, 56E

Sales code No. 40654, 40655, 40656
Construction No. 435 004, 435 005, 435 006





Extension tube 32E



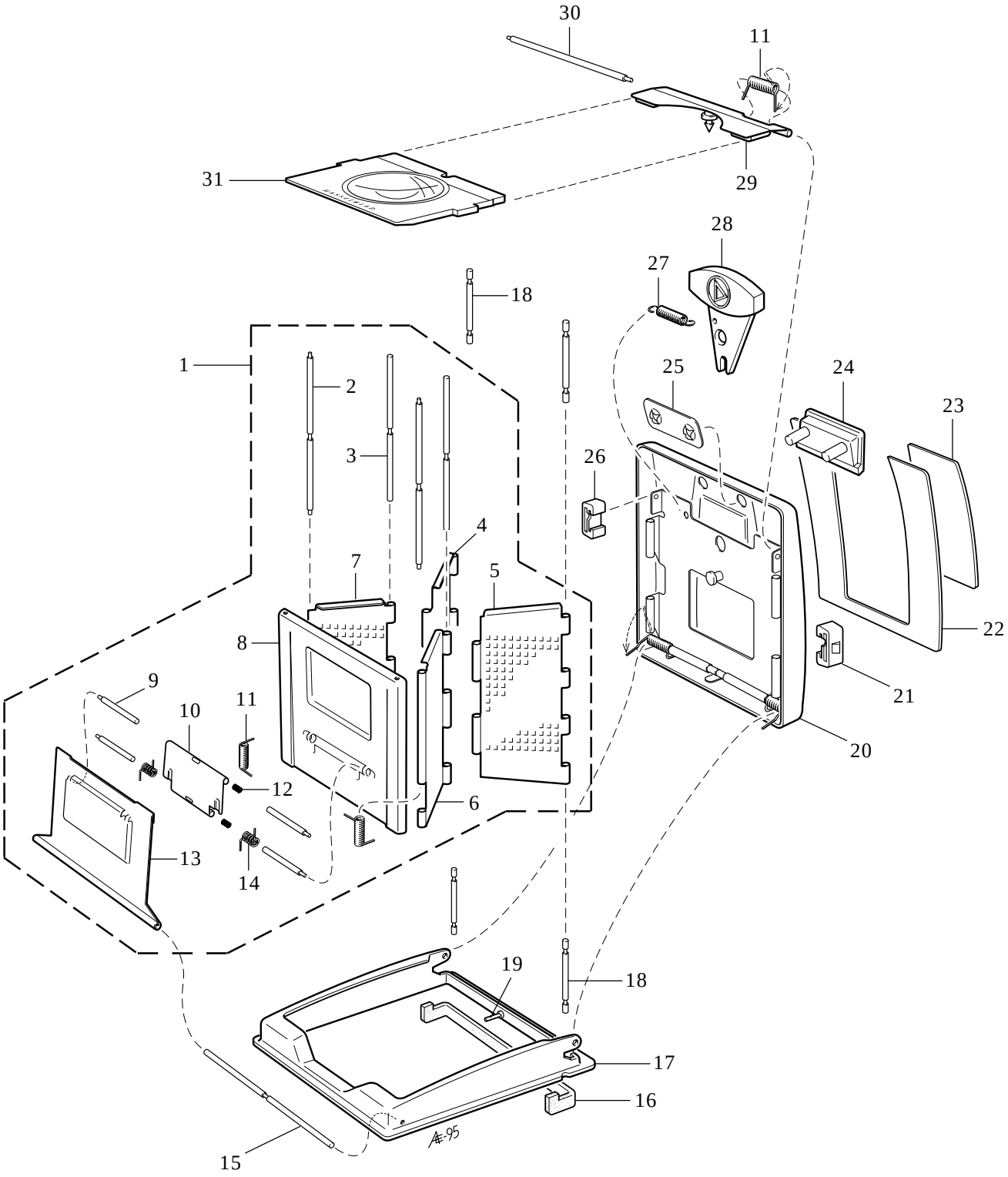
Extension tube 16E

Extension tube 16E, 32E, 56E

Pos No.	Pcs	Spare Part No.	Description	Remark
1	3	826 002	Screw	
2	1	435 342	Cover	
3	2	829 325	Screw	
4	1	435 108	Holder	56E
5	1	435 041	Locking mechanism	Incl. 816 304
6	1	816 304	Spring	
7	1	435 353	Holder	32E, 56E
8	4	815 513	Spring	
9	4	435 402	Contact pin	
10	1	435 106	Holder	
11	1	435 404	Roller	
12	1	435 104	Key	56E
13	1	403 346	Spring	
14	6	812 311	Pin	Alternatively 812 313/314
15	1	816 929	Spring	
16	1	435 341	Catch	
17	1	435 107	Holder	32E
18	1	435 103	Key	32E
19	4	435 403	Contact pin	16E
20	1	435 105	Holder	16E
21	1	435 101	Key	16E

Focusing hood

Sales code No. 42315, 42323
Construction No. 416 001, 416 002

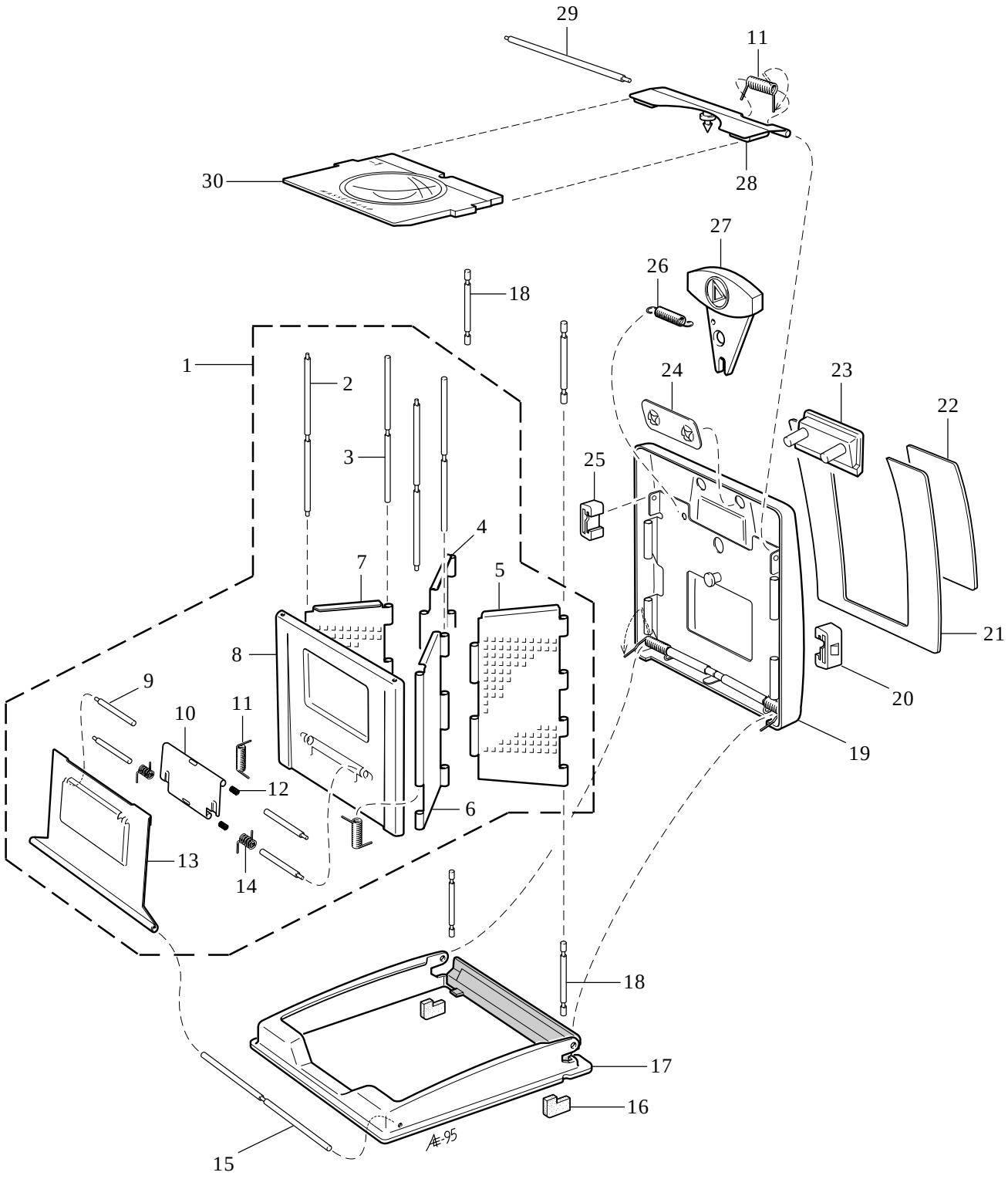


Focusing hood

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	416 043	Plate assembly	
2	2	416 415	Axle	
3	2	416 414	Axle	
4	1	416 403	Side plate, left	Front
5	1	416 404	Side plate, right	Front
6	1	416 402	Side plate, right	Rear
7	1	416 401	Side plate, left	Rear
8	1	416 342	Rear plate	
9	4	416 416	Axle	
10	1	416 408	Hinge, upper	
11	3	816 925	Spring	
12	2	815 612	Spring	
13	1	416 407	Hinge, lower	
14	2	816 924	Spring	
15	1	416 419	Axle	
16	1	416 427	Light seal	
17	1	416 111	Frame	
18	4	416 413	Axle	
19	1	836 001	Pin	
20	1	416 040	Lid	Chrome
	1	416 041	Lid	Black
21	1	416 348	Lock	
22	1	416 425	Leather	
23	1	416 426	Leather	
24	1	416 346	Grip	
25	1	416 417	Plate	
26	1	416 347	Lock	
27	1	814 507	Spring	
28	1	416 345	Catch	
29	1	416 112	Bracket	
30	1	416 423	Axle	
31	1		Magnifier, 0 Neutral	Sales Code No. 42331

Focusing hood E

Sales code No. 42317, 42325
Construction No. 416 003, 416 004

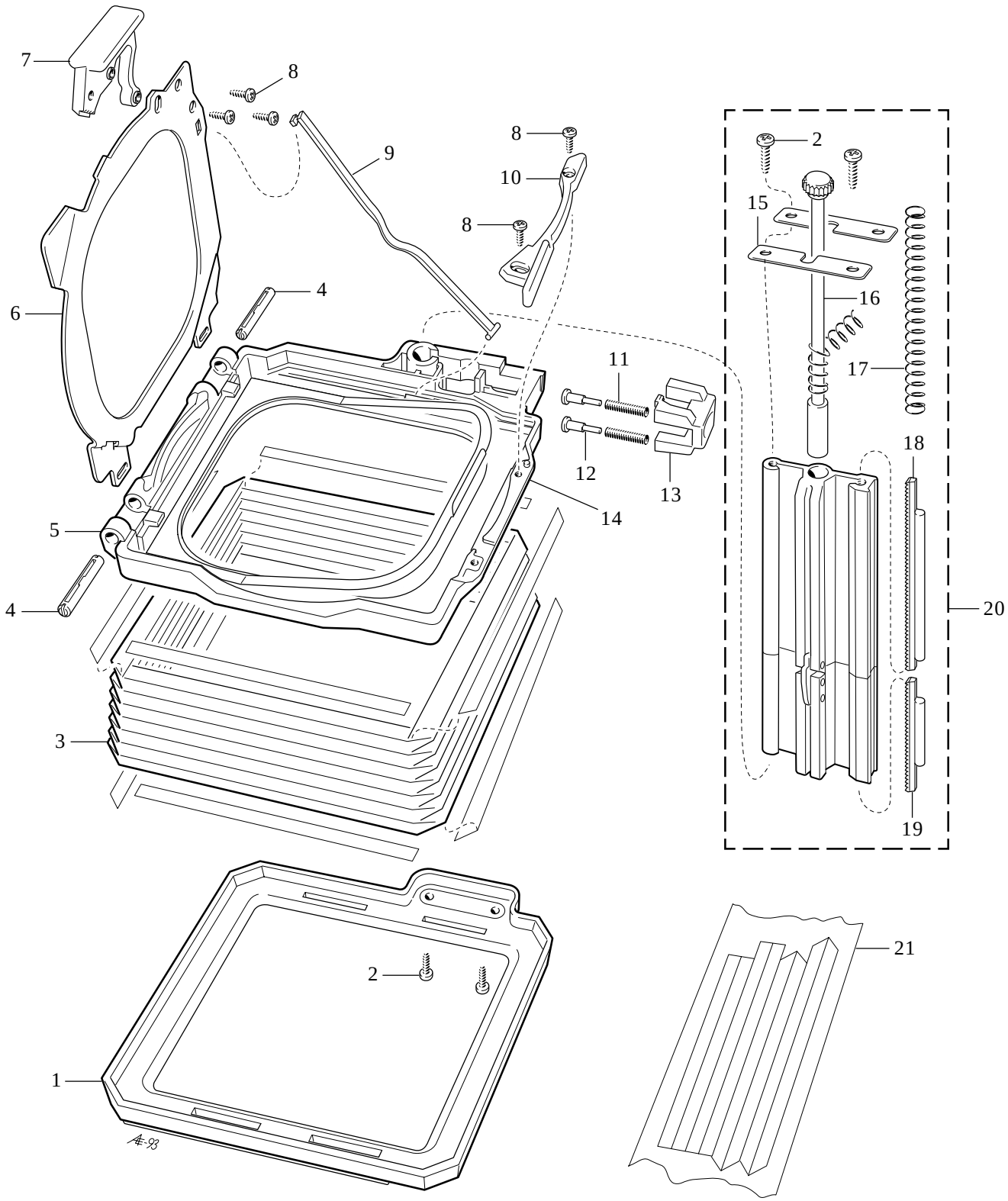


Focusing hood E

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	416 044	Plate assembly	
2	2	416 415	Axle	
3	2	416 414	Axle	
4	1	416 403	Side plate, left	Front
5	1	416 404	Side plate, right	Front
6	1	416 402	Side plate, right	Rear
7	1	416 354	Side plate, left	Rear
8	1	416 342	Rear plate	
9	4	416 416	Axle	
10	1	416 408	Hinge, upper	
11	3	816 925	Spring	
12	2	815 612	Spring	
13	1	416 407	Hinge, lower	
14	2	816 924	Spring	
15	1	416 419	Axle	
16	2	416 428	Light seal	
17	1	416 460	Frame	
18	4	416 413	Axle	
19	1	416 045	Lid	Chrome
	1	416 046	Lid	Black
20	1	416 348	Lock	
21	1	416 425	Leather	
22	1	416 426	Leather	
23	1	416 346	Grip	
24	1	416 417	Plate	
25	1	416 347	Lock	
26	1	814 507	Spring	
27	1	416 345	Catch	
28	1	416 112	Bracket	
29	1	416 423	Axle	
30	1		Magnifier, -1 Diopters	Sales Code No. 42374

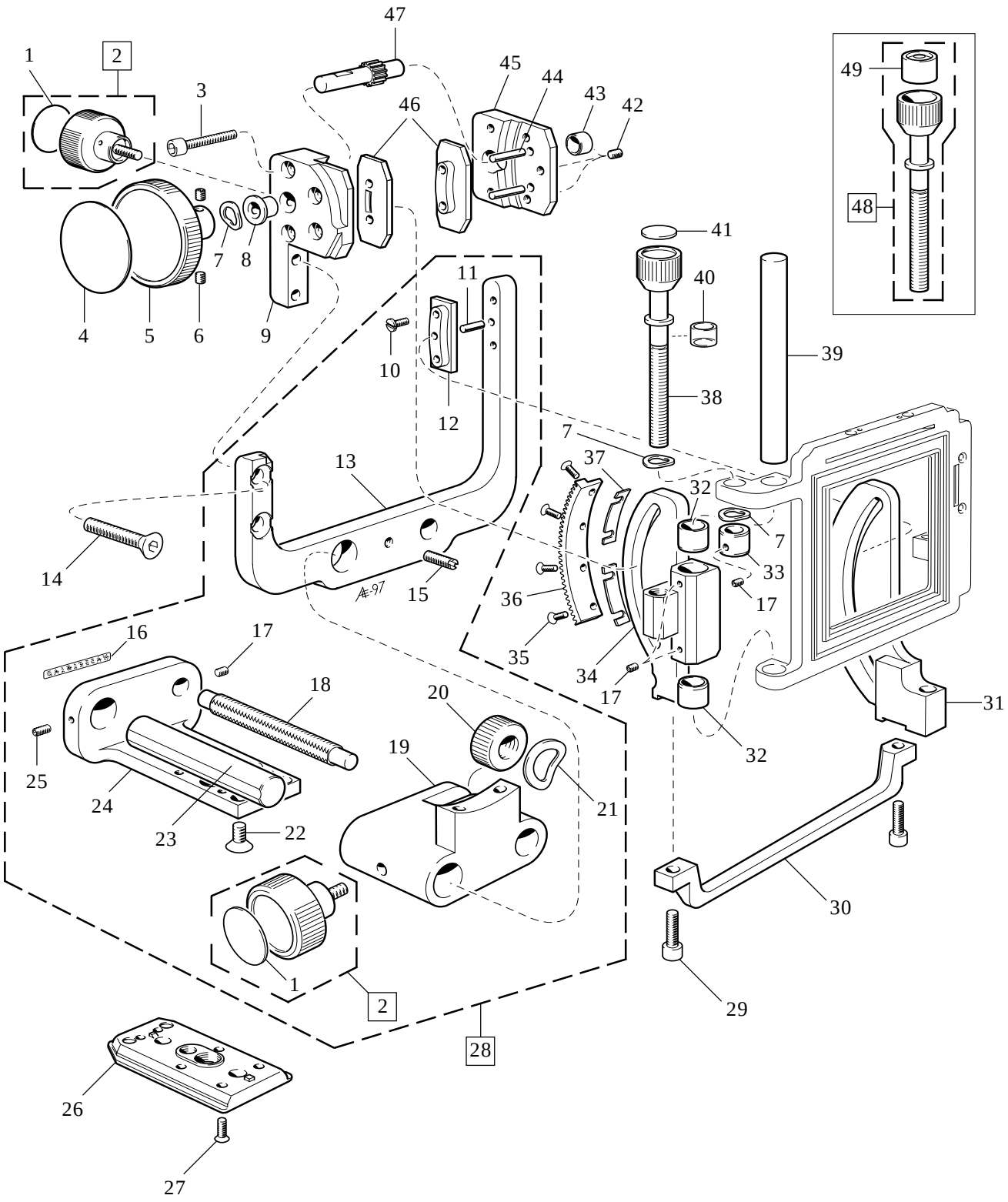
Proshade 6093-T

Code No. 40739
Construction No. 415 390



Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	415 371	Front frame	
2	4	415 419	Screw	
3	1	415 370	Bellows	
4	2	415 446	Joint	
5	1	415 335	Rear frame	
6	1	415 336	Interm. frame	
7	1	415 444	Catch	
8	5	826 010	Screw	
9	1	415 445	Link coupling	
10	1	415 384	Locking arm	
11	2	815 708	Spring	
12	2	415 413	Pin	
13	1	415 440	Brake	
14	1	415 447	Lifter	
15	2	415 408	Plate	
16	1	415 385	Locking shaft	
17	1	815 857	Spring	
18	1	415 457	Rack, long	
19	1	415 458	Rack, short	
20	1	415 391	Rail, compl.	
21	1	415 454	Tape	

FlexBody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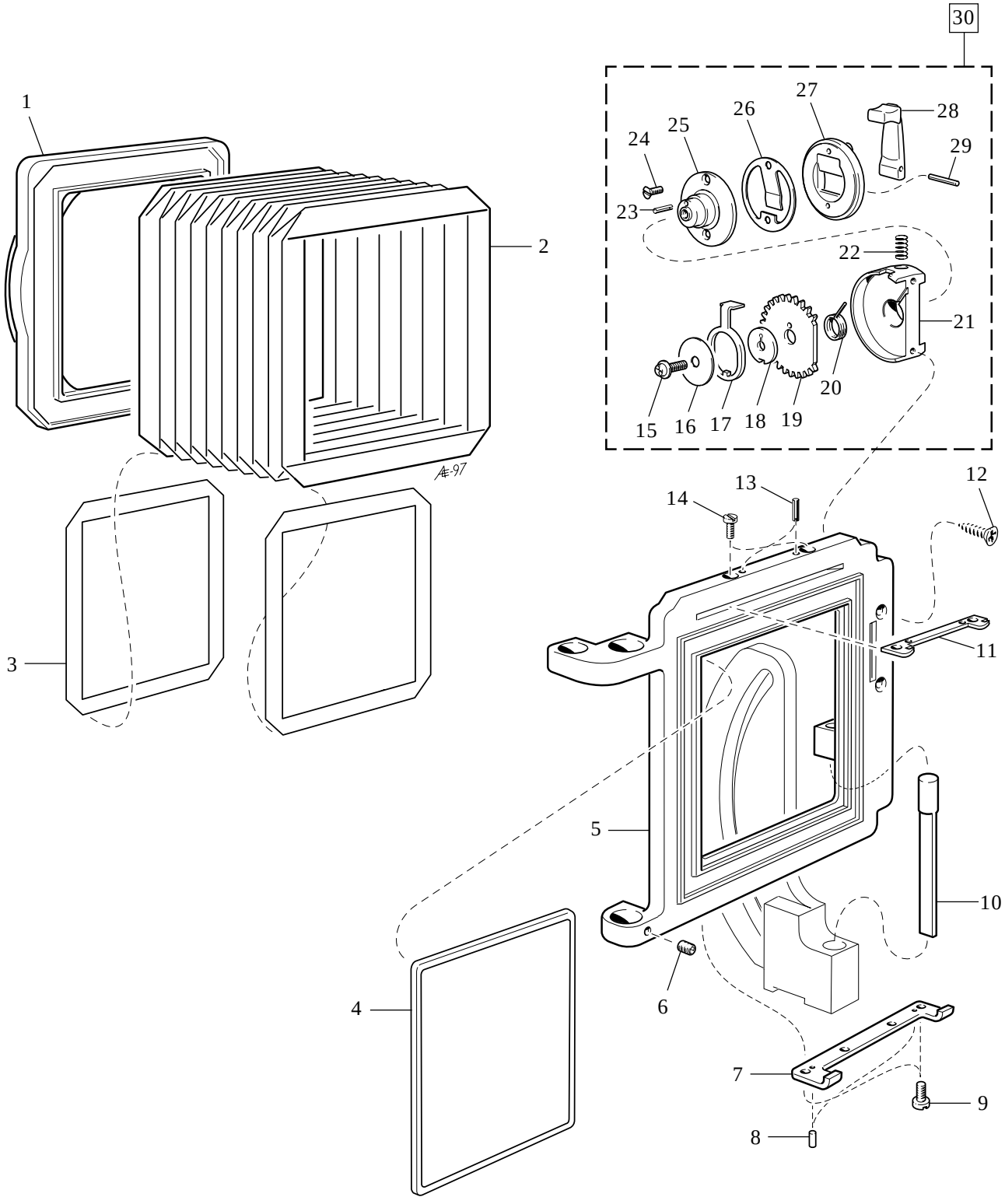
FlexBody

Pos No.	Pcs	Spare Part No.	Description	Remark
1	2	13 379	Leather	
2	2	109 101	Knob, complete	
3	2	821 820	Screw	
4	1	12 166	Leather	
5	1	109 354	Knob	
6	2	825 960	Screw	
7	3	810 919	Spring washer	
8	1	109 422	Bearing	
9	1	109 360	Support, outer	
10	2	821 663	Screw	
11	1	812 503	Pin	
12	1	109 367	Guide	
13	1	109 341	Intermediate part	
14	2	824 963	Screw	
15	1	825 764	Stop screw	
16	1	13 190-1	Name plate	
17	4	825 733	Screw	
18	1	109 352	Rod	
19	1	109 330	Slider	
20	1	109 353	Nut	
21	1	810 958	Spring washer	
22	2	824 964	Screw	
23	1	109 355	Pin	
24	1	109 349	Foot	
25	1	825 704	Screw	
26	1	30 763	Tripod foot	
27	6	829 790	Screw	
28	1	109 022	Foot, complete	
29	2	821 911	Screw	
30	1	109 356	Attachment	
31	1	109 366	Plate, right	
32	2	840 906	Bearing	
33	1	109 419	Locking ring	
34	1	109 362	Plate, left	
35	4	823 451	Screw	
36	1	109 364	Gear ring	
37	2	109 405	Shim (0,05mm)	Alternatively 109 409 (0,10mm)
38	1	109 347	Adjusting screw	
39	1	812 903	Pin	
40	1	109 415	Shrink sleeve	
41	1	109 453	Leather	
42	3	825 732	Screw	
43	1	840 905	Bearing	
44	2	812 705	Pin	
45	1	109 361	Support, inner	
46	2	109 363	Slide bar	
47	1	109 365	Gear	
48	1	109 346	Adjusting screw, complete	Below Serial No. 451EU1308
49	1	13 456	Level	"

FlexBody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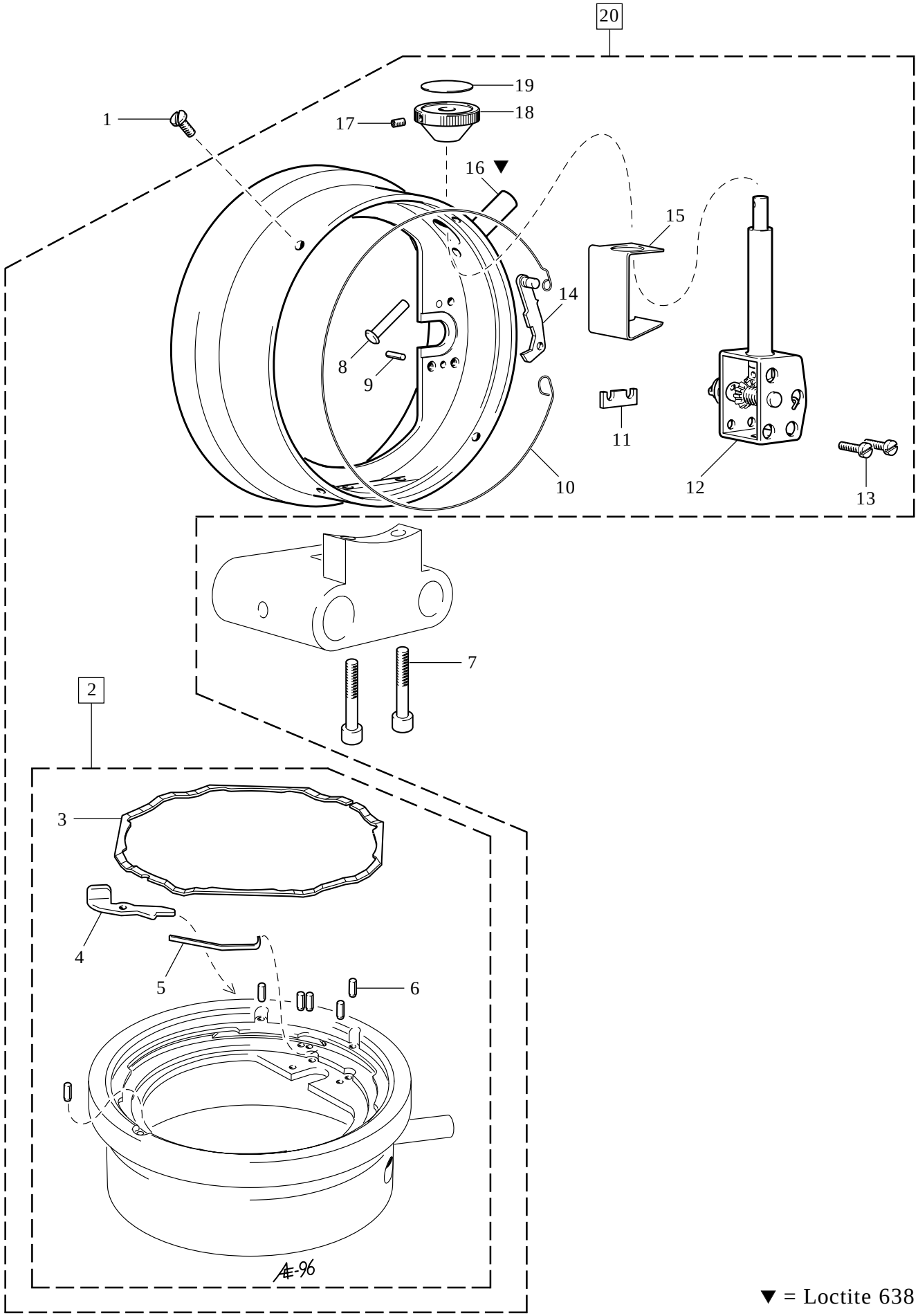
FlexBody

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	109 357	Frame	
2	1	109 301	Bellows	
3	2	109 421	Tape	
4	1	22 807	Stray light mask	
5	1	109 322	Rear plate	Please state serial No.
6	1	825 733	Screw	
7	1	109 401	Support plate	
8	2	812 311	Pin	
9	4	821 661	Screw	
10	1	109 359	Guide pin	
11	1	109 402	Magazine hook	
12	2	308 447	Screw	
13	2	812 202	Pin	
14	2	820 430	Screw	
15	1	830 060	Screw	
16	1	810 736	Washer	
17	1	109 414	Latch	
18	1	109 413	Locking washer	
19	1	109 403	Gear	
20	1	109 424	Spring	
21	1	109 342	Housing	
22	1	815 754	Spring	
23	1	811 201	Pin	
24	2	823 015	Screw	
25	1	109 343	Driving shaft	
26	1	13 826	Spring	
27	1	30 484-1	Crank support	
28	1	13 810-1	Handle	
29	1	812 207	Pin	
30	1	109 025	Crank mechanism, complete	
		109 024	Rear plate, complete	Please state serial No.

FlexBody

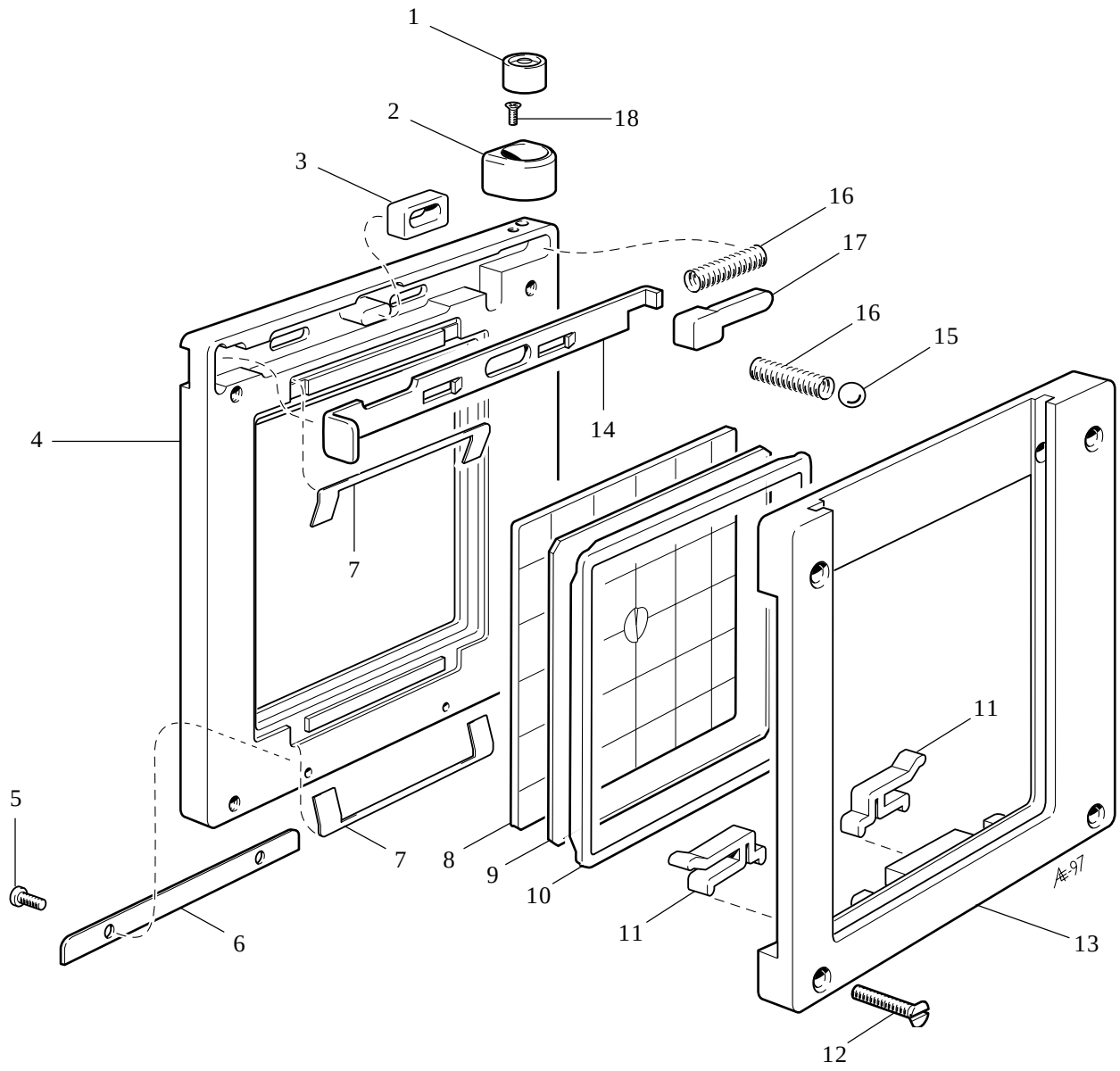


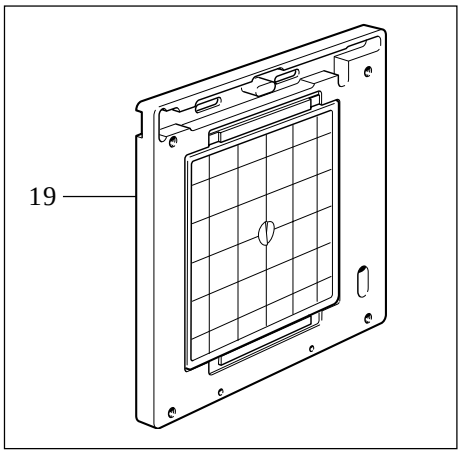
▼ = Loctite 638

FlexBody

Pos No.	Pcs	Spare Part No.	Description	Remark
1	4	821 460	Screw	
2	1	109 049	Lens holder	
3	1	403 346	Spring	
4	1	435 341	Catch	
5	1	816 929	Spring	
6	6	812 311	Pin	Alternatively 812 313/314
7	2	821 910	Screw	
8	1	13 411	Rod	
9	1	811 201	Pin	
10	1	21 519	Spring	
11	1	109 116	Washer	
12	1	21 514	Mechanism, complete	
13	2	820 016	Screw	
14	1	13 774	Catch	
15	1	13 777	Cover	
16	1	13 779	Socket	
17	1	825 002	Screw	
18	1	13 778	Knob	
19	1	109 429	Sign plate	
20	1	109 021	Lens holder, complete	

Focusing screen adapter FlexBody





Focusing screen adapter FlexBody

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	436 412	Level	
2	1	436 102	Holder	
3	1	436 404	Support	
4	1	436 041	Frame	
5	2	830 440	Screw	
6	1	402 476	Holder	
7	2	109 368	Holder	
8	1	413 323	Focusing screen	
9	1	413 415	Glass	
10	1	413 416	Frame	
11	2	436 407	Spring	
12	4	823 783	Screw	
13	1	436 321	Rear plate	
14	1	402 475	Locking arm	
15	1	809 030	Steel ball	
16	2	815 808	Spring	
17	1	436 409	Spring support	
18	1	829 435	Screw	
19	1	436 041-1	Frame, incl. focusing screen	Previous type Focusing screen adapter FlexBody. (Please see Service Info 22/97)

FlexBody

● = Isoflex Topas L32

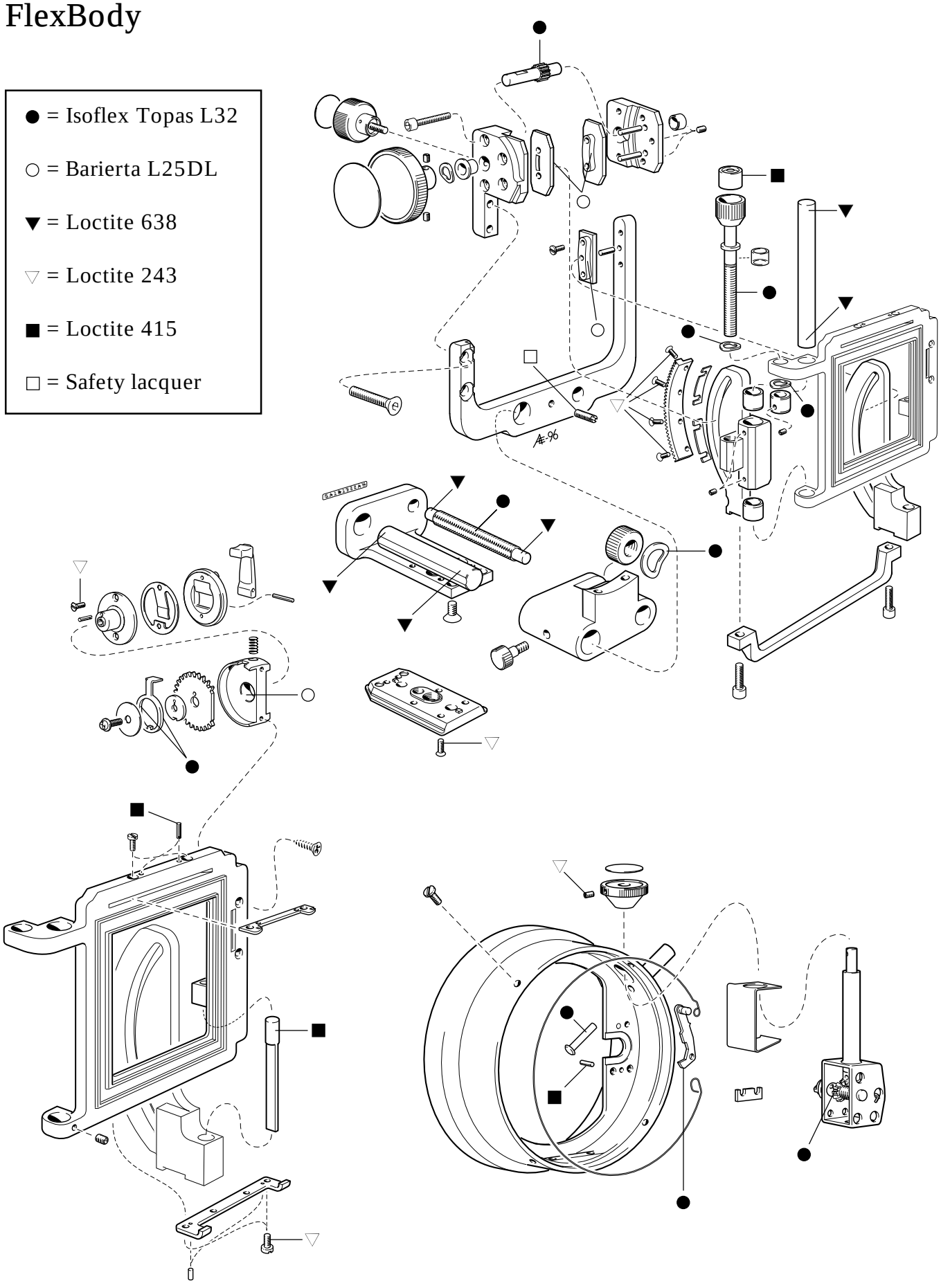
○ = Barierta L25DL

▼ = Loctite 638

▽ = Loctite 243

■ = Loctite 415

□ = Safety lacquer



FlexBody

Control/adjustment of the focal length (infinity position)

Control/adjustment should be carried out each time the FlexBody has been in for repair. The FlexBody is so-called over focused. The focal length is 71.40 mm - 0.2 mm.

The following test equipment is required:

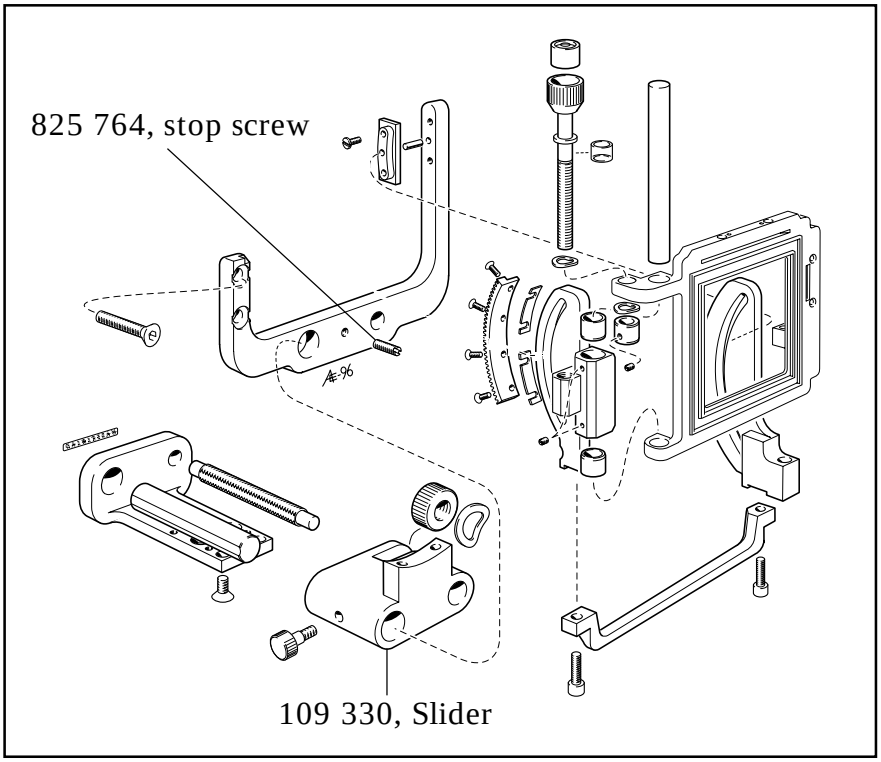
- Planar CF80 mm lens at full aperture with controlled infinity position. Deviation max. ± 0.03 mm.

- Magazine fitted with a front surface coated mirror resting on the edges of the picture frame. The Hasselblad mirror with part No. 103 452 is suitable.

- Lens collimator.

Adjustment

Adjust the lens extension mechanism to infinity position and control that the slider 109 330 is resting on the stop screw 825 764.
Note! The tilt and shift controls should be in the neutral (0-) position.
Adjust by rotating the stop screw 825 764 and secure with safety lacquer. (See fig. below)



FlexBody

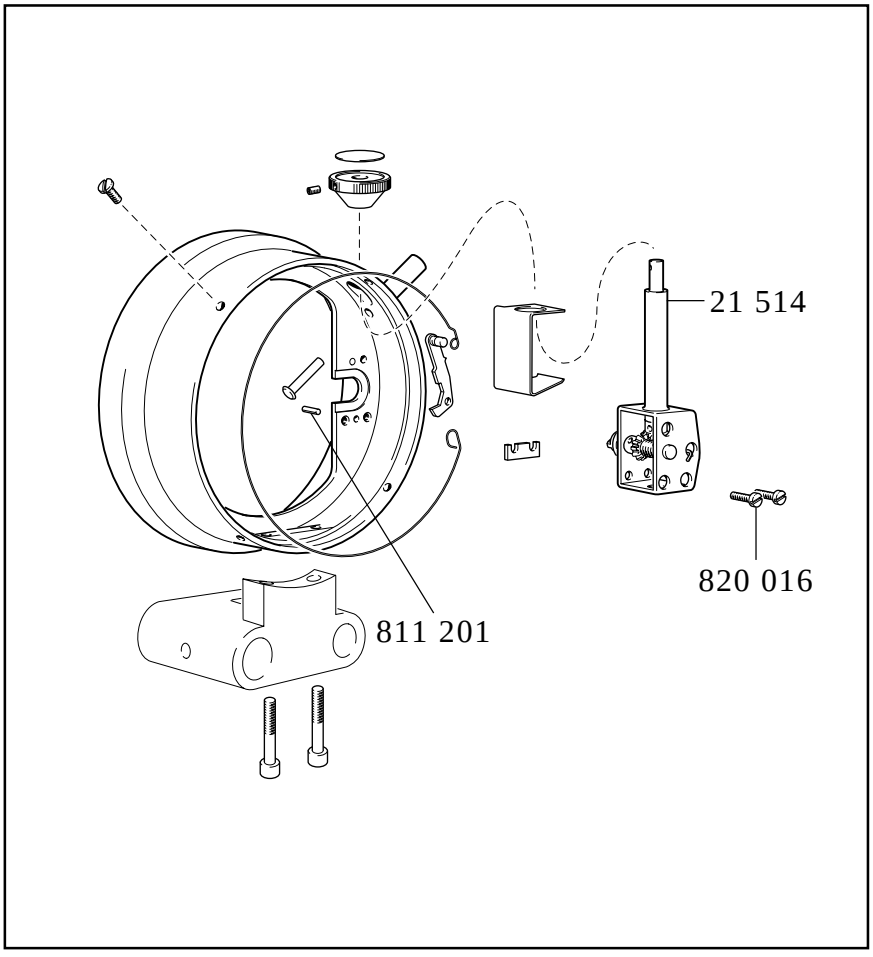
Centering the front mechanism (21 514)

Mount the tool 902658 (V-2075) into the lens holder and connect tool 902918 (V-2219). Turn the key using 902918 to a vertical position. Check that the free play is even in both directions. If there is more resistance at one direction than the other move the front mechanism to obtain a balance. Carry out the same procedure with the key in a horizontal position. Also check at the 180° points in both vertical and horizontal position.

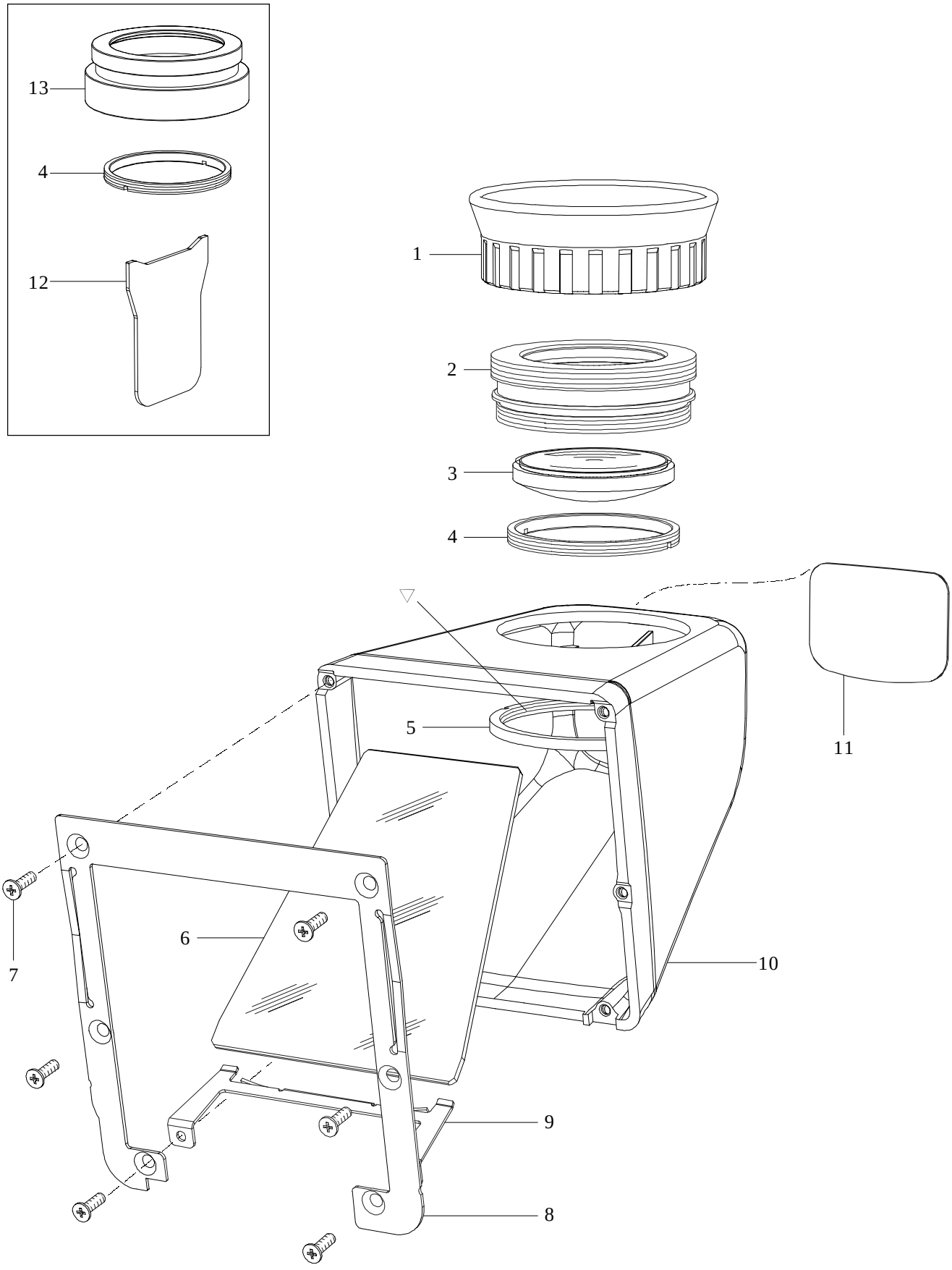
When the key is centralised tighten both screws 820 016.

The hole for the locating pin 811 201 is bored with 1.2 mm drill. Drive in the pin until it is on a level with the lens holder and secure it with loctite.

Remove the swarf and lubricate the bevel gears with grease.



Reflex viewfinder RMfx

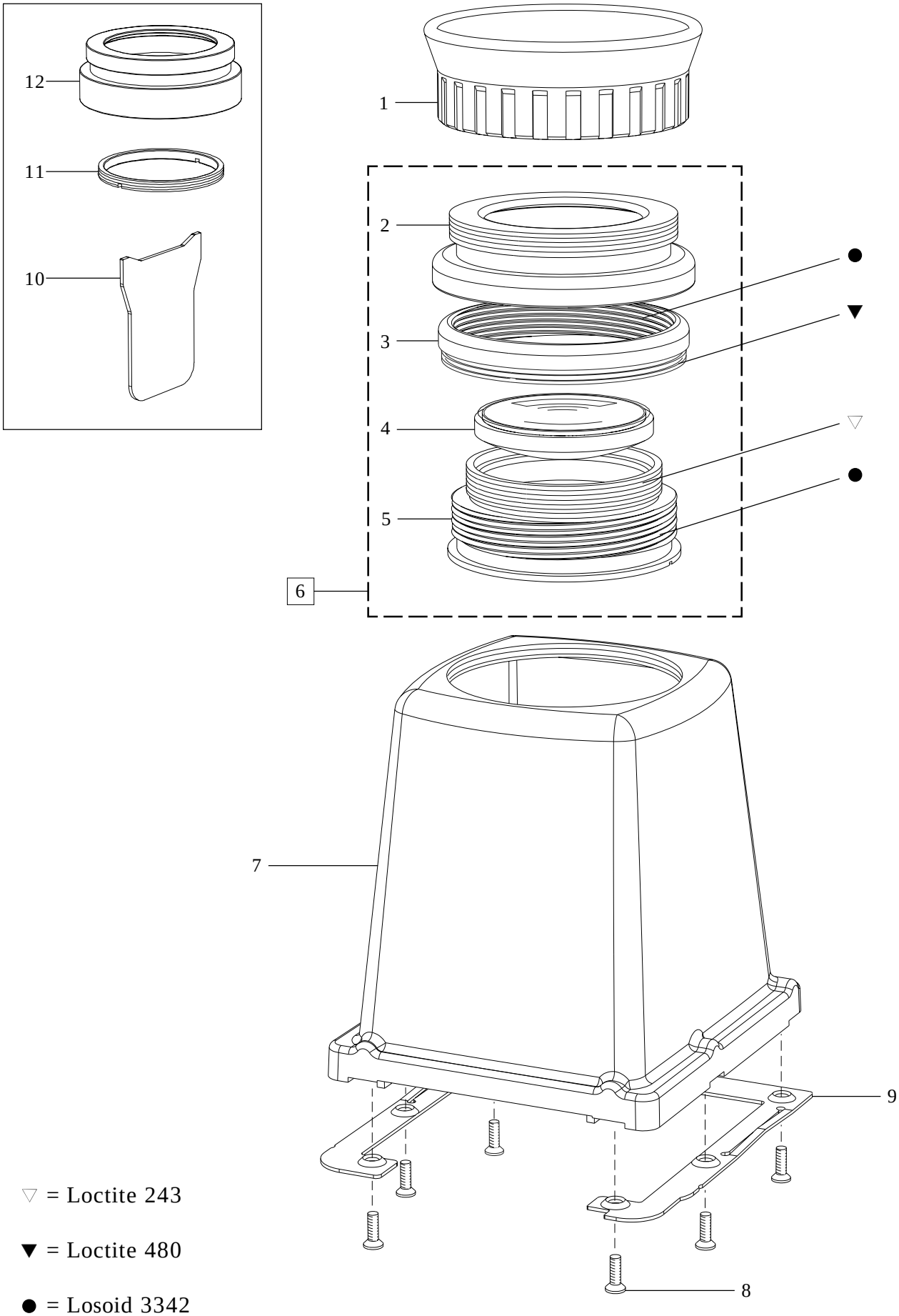


▽ = Loctite 243

Reflex viewfinder RMfx

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	436 348	Rubber eyepiece	
2	1	436 352	Lens holder	
3	1	109 408	Lens	
4	2	436 401	Locking ring	
5	1	436 403	Locking ring	
6	1	436 410	Mirror	
7	6	826 024	Screw	
8	1	436 358	Frame	
9	1	436 353	Holder	
10	1	436 322	Housing	
11	1	436 402	Leather	
12	1	436 411	Key	
13	1	436 347	Lens holder	

Magnifying hood HM2



▽ = Loctite 243

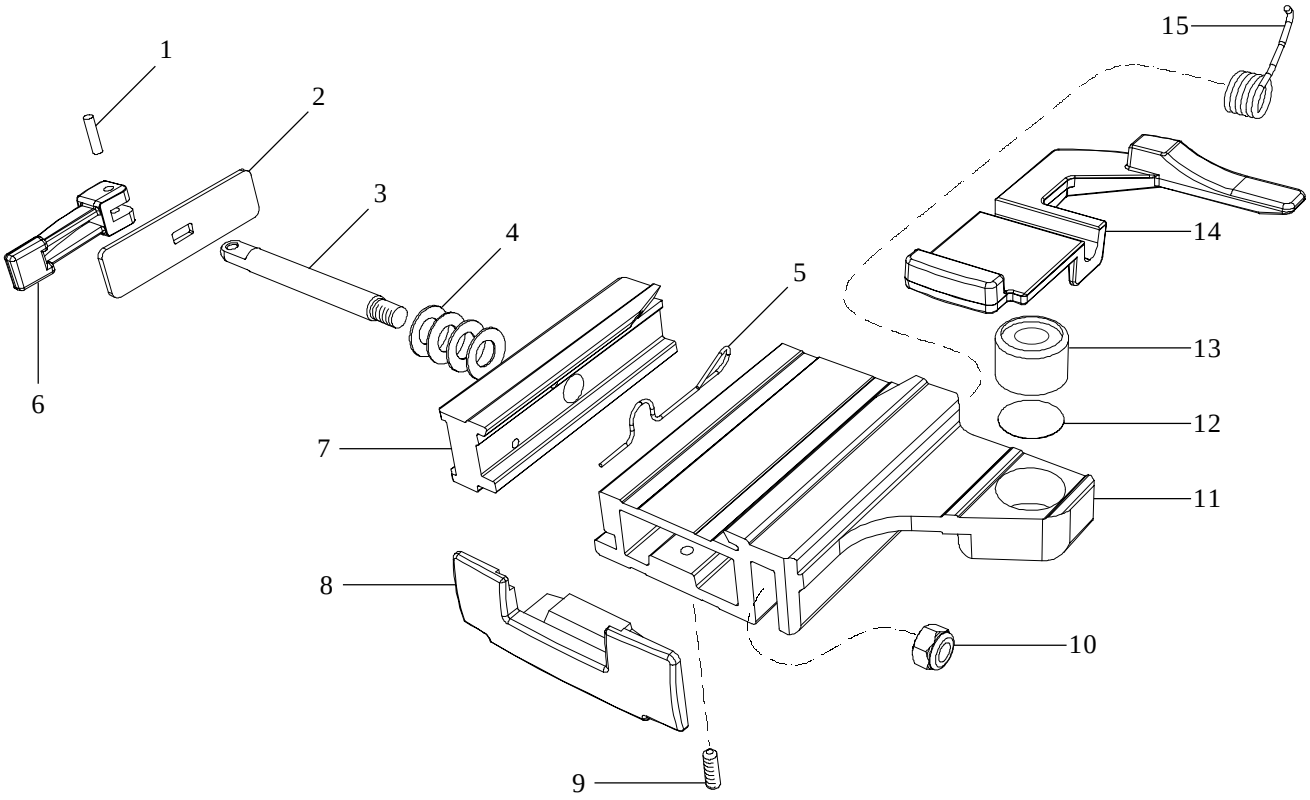
▼ = Loctite 480

● = Losoid 3342

Magnifying hood HM2

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	436 348	Rubber eyepiece	
2	1	436 346	Holder	
3	1	436 344	Ring	
4	1	109 408	Lens	
5	1	436 345	Lens Holder	
6	1	436 101	Lens assembly	
7	1	436 350	Housing	
8	6	826 024	Screw	
9	1	436 358	Frame	
10	1	436 411	Key	
11	1	436 401	Locking ring	
12	1	436 347	Lens holder	

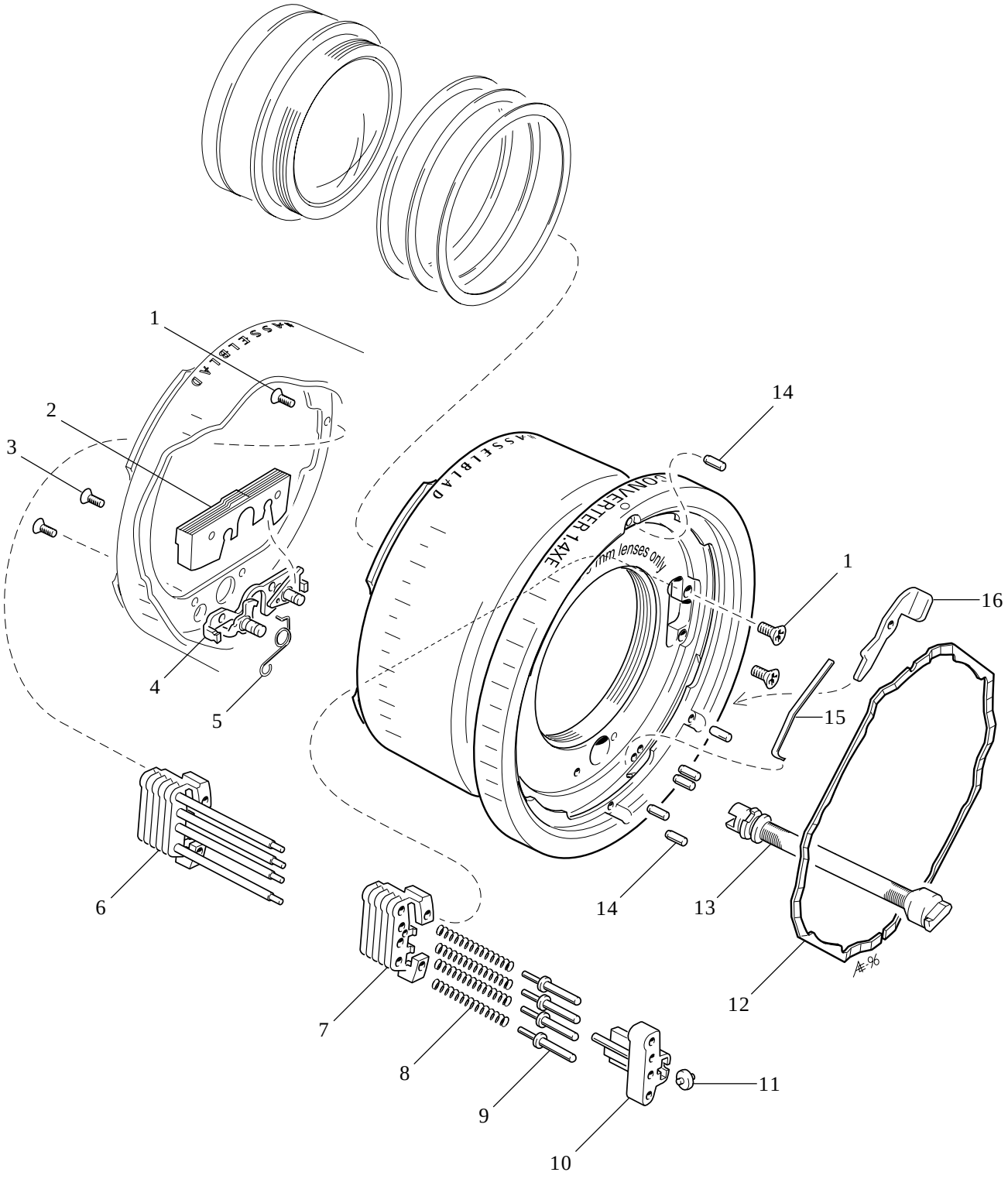
Tripod quick-coupling S



Tripod quick-coupling S

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	812 604	Pin	
2	1	406 413	Pressure plate	
3	1	406 412	Rod	
4	4	810 918	Spring washer	
5	1	406 400	Spring	
6	1	406 322	Handle	
7	1	406 345	Holder	
8	1	406 399	Cover	
9	1	825 905	Screw	2.5 mm
	1	825 904	Screw	3 mm, Please see Service Info 23/97
10	1	828 905	Nut	
11	1	406 346	Base	
12	1	13 455	Washer	
13	1	13 456	Level	
14	1	406 321	Stop key	
15	1	816 934	Spring	

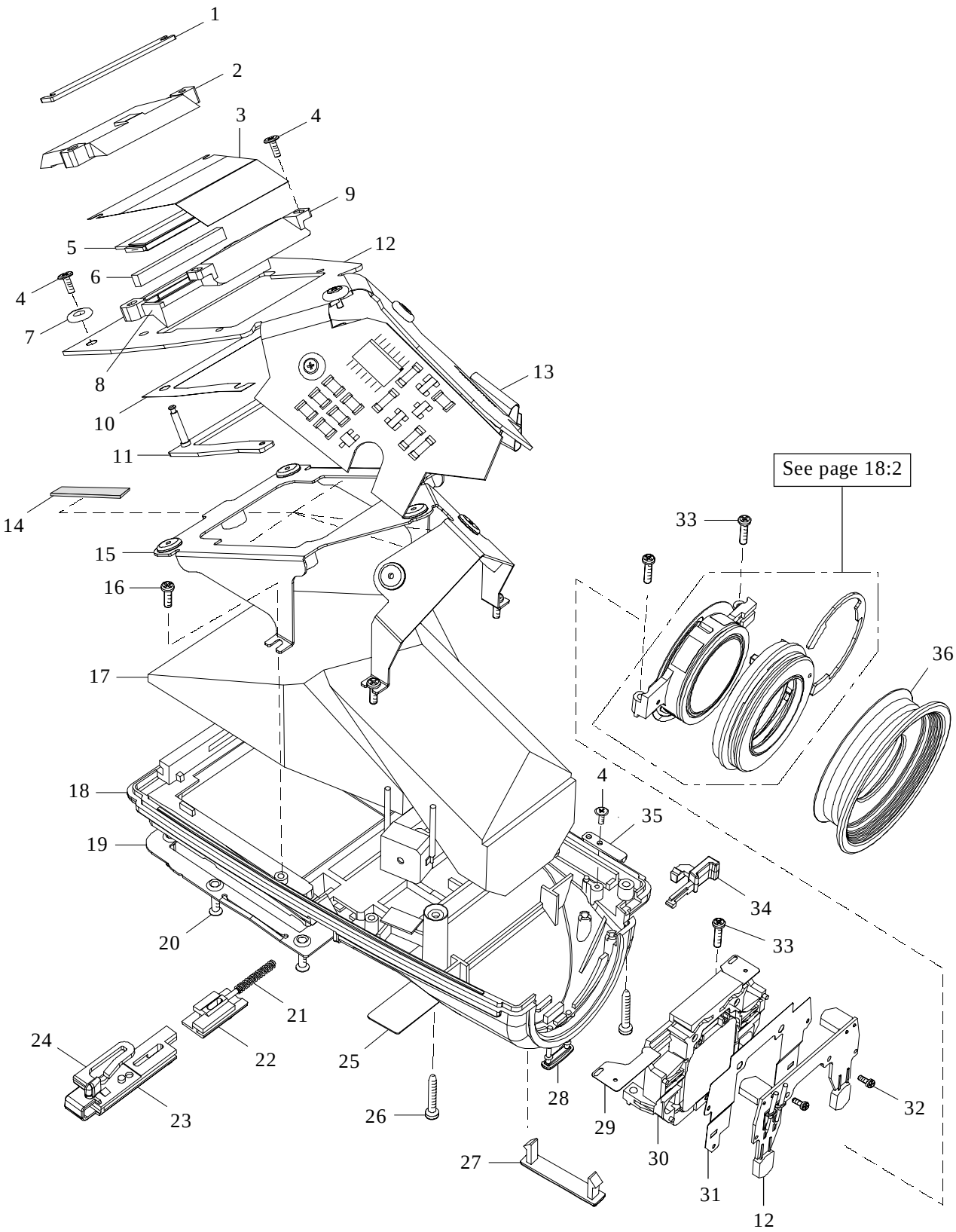
Teleconverter 1.4XE



Teleconverter 1.4XE

Pos No.	Pcs	Spare Part No.	Description	Remark
1	3	826 002	Screw	
2	1	435 342	Cover	
3	2	829 325	Screw	
4	1	435 041	Locking mechanism	Incl. 816 304
5	1	816 304	Spring	
6	1	435 112	Holder	
7	1	435 353	Holder	
8	4	815 513	Spring	
9	4	435 402	Contact pin	
10	1	435 111	Holder	
11	1	435 404	Roller	
12	1	403 346	Spring	
13	1	435 113	Key	
14	6	812 311	Pin	Alternatively 812 313/314
15	1	816 929	Spring	
16	1	435 341	Catch	
			Optics	Not available as spare part
			Housing	Not available as spare part

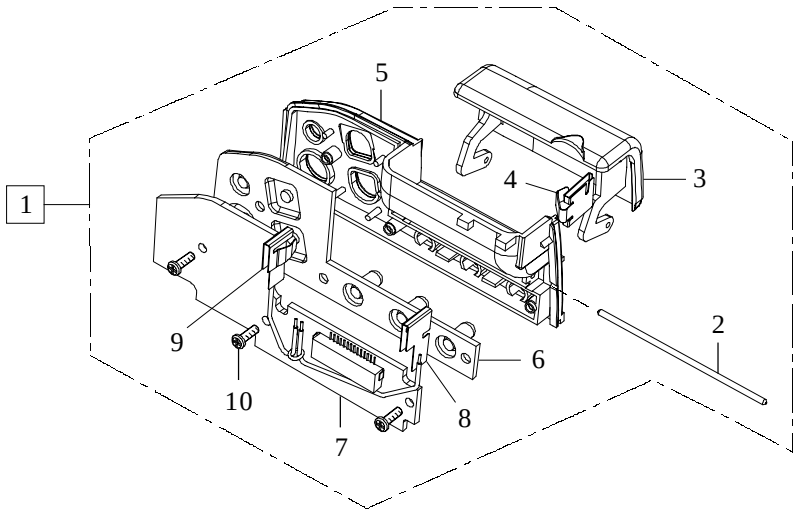
Meter prism viewfinder PME90

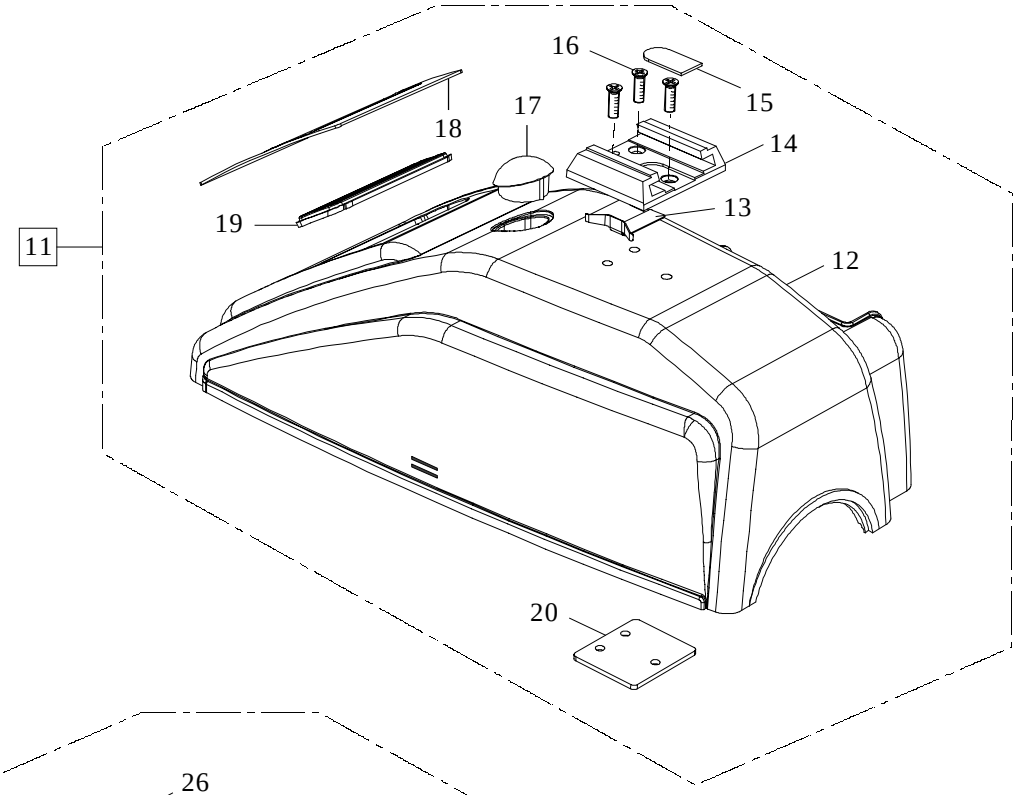


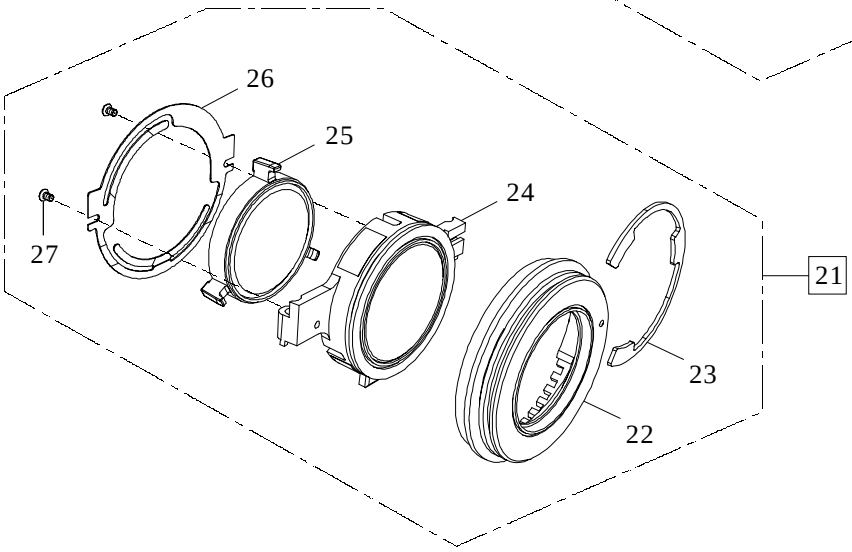
Meter prism viewfinder PME90

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	414 616	Locking bar	
2	1	414 392	Light transmitter	
3	1	414 654	Diffusor	
4	8	830 016	Screw	
5	1	414 612	LCD	
6	1	414 635	Rubber contact pad	
7	5	107 421	O-ring	
8	1	414 676	Display prism 1	
9	1	414 391	Display prism 2	
10	1	414 675	Insulator	
11	1	414 655	Support	
12	1	414 395	Main PC board, complete	Incl. sensor board
13	1	414 696	Flex	
14	4	414 576	Pad	
15	1	414 336	Prism holder	
16	4	826 018	Screw	
17	1	414 332	Prism	
18	1	414 669	Frame	
19	1	414 387	Engraved frame	State serial No.
20	6	826 022	Screw	
21	1	815 805	Spring	
22	1	414 666	Arm	
23	1	414 665	Arm	
24	1	414 667	Catch	
25	1	414 600	Name plate	
26	3	826 020	Screw	
27	1	414 672	Cover	
28	1	414 606	Support	
29	2	414 582	Spot diaphragm	
30	1	414 388	Sensor unit, complete	
31	1	414 631	Integral diaphragm	
32	2	826 017	Screw	
33	4	826 019	Screw	
34	1	414 617	Locking arm	
35	1	414 607	Catch	
36	1	414 597	Eye cup	
			Cover	Sales code No. 52191

Meter prism viewfinder PME90







Meter prism viewfinder PME90

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	414 642	Control unit, complete	
2	1	414 674	Shaft	
3	1	414 671	Battery cover	
4	1	414 643	Contact spring	
5	1	414 673	Panel	
6	1	414 396	Rubber keypad	
7	1	414 670	Circuit board	
8	1	414 659	Contact, -	
9	1	414 652	Contact, +	
10	3	826 018	Screw	
11	1	414 393	Housing, complete	
12	1	414 661	Housing	
13	1	414 434-01	Plate spring	
14	1	406 110	Shoe	
15	1	405 412	Plate	
16	3	829 660	Screw	
17	1	414 585	Dome	
18	1	414 602	Leather	
19	1	414 394	Window	
20	1	414 403	Plate	
21	1	414 390	Eye-piece unit, complete	
22	1	414 618	Focusing ring	
23	1	414 662	Locking clip	
24	1	414 640	Lens, outer	
25	1	414 641	Lens, inner	
26	1	414 663	Spring	
27	2	826 021	Screw	
			Battery	3 volt, type CR-123A Lithium

Meter prism viewfinder PME90

Link to: VHABSTS

Calibration:

The PME90 has microprocessor controlled electronics. Variable resistors are eliminated. The calibration is done by software writing corrections into an EE-prom.

Therefore the Hasselblad Service Test System and an IBM compatible PC must be used for calibration work.

The procedure is described in the Service Test System user manual.

Tolerances

Exposure meter: Max. deviation ± 0.3 EV.
Current Drain: Max. 50uA.

CAUTION! When handling the circuit board a grounded bench mat and a wrist strap must be used to prevent ESD damage.

Cleaning:

Note! The figures in brackets below refers to the exploded view page 18:1.

Remove the housing held by three screws (26). Separate the housing and the control unit. Disconnect the flex from the control unit.

The prism:

The prism is held in position by a prism holder (15) which is secured by four screws (16). After removal of the screws, the prism holder including the main PC board can be separated from the prism. Ensure that the two cables connecting the main PC board and the sensor board are not damaged.
The prism can now be removed for cleaning.

Note! The sensor unit and the eye-piece remains in position.

The eye-piece unit:

It consists of two glass lenses (three if a correction lens is installed) and is held in position by two screws.
Remove the catch (35), the locking arm (34) and the screws (33).
The eye-piece is now removable for cleaning.

Note! The eye-piece must be rotated fully clockwise before it is removed. If not, it could damage the sensitive plastic lens mounted in the sensor unit next to it.

The sensor unit:

It is also held by two similar screws (33). Before it can be removed for cleaning, the two screws retaining the rear part of the main PC board must be removed.

Note! Only a blower or a clean brush should be used for cleaning the plastic lens. If the lens is damaged, the complete unit should be changed. (Factory calibrated).

Meter prism viewfinder PME90

Display:

Note! If the display has been disassembled for cleaning care must be taken when it is reassembled. The two prisms, the LCD and the light transmitter can easily be scratched.

Reassembly:

Mount the display prism 2 (1) with two screws (2). (Final position later).
Mount the display prism 1 (3).
Put the rubber contact pad (4) into the slot of the prism 1.
Place the LCD (5) in position and push it to the left according to fig. 1.

Note! The profile should face the right hand side.

Cover the LCD with the diffusor (6) and make sure the upper end of the diffusor is placed underneath the PC board.
Mount the light transmitter (7) and carefully secure with the locking bar (8).
Re-check the LCD position.

The final display position is set by adjusting the display prism 2 (1) when viewing through the eye-piece.

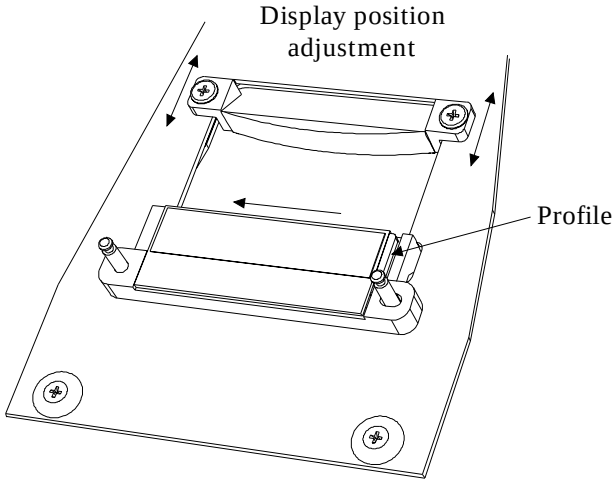


Fig. 1

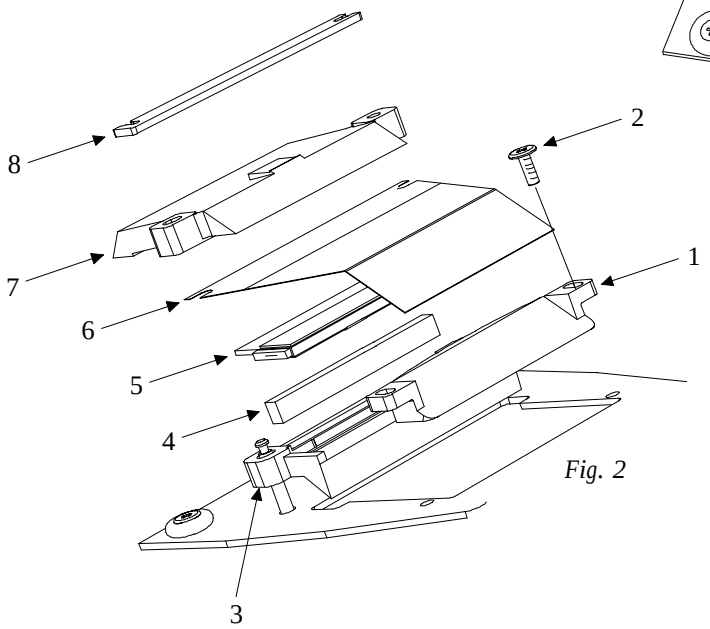


Fig. 2

Meter prism viewfinder PME90

Spot adjustment:

The spot metering system consists of two channels. Each channel has a mirror, a lens, and a metal diaphragm mounted in the sensor unit.
Two sensors (light sensitive diode) are mounted on the sensor board.

The position of the two diaphragms defines the spot position. Each one should be checked optically before an adjustment. (Instruction below). The diaphragms are secured with safety lacquer.
Normally there is no need to adjust the spot position except when the sensor unit has been replaced.

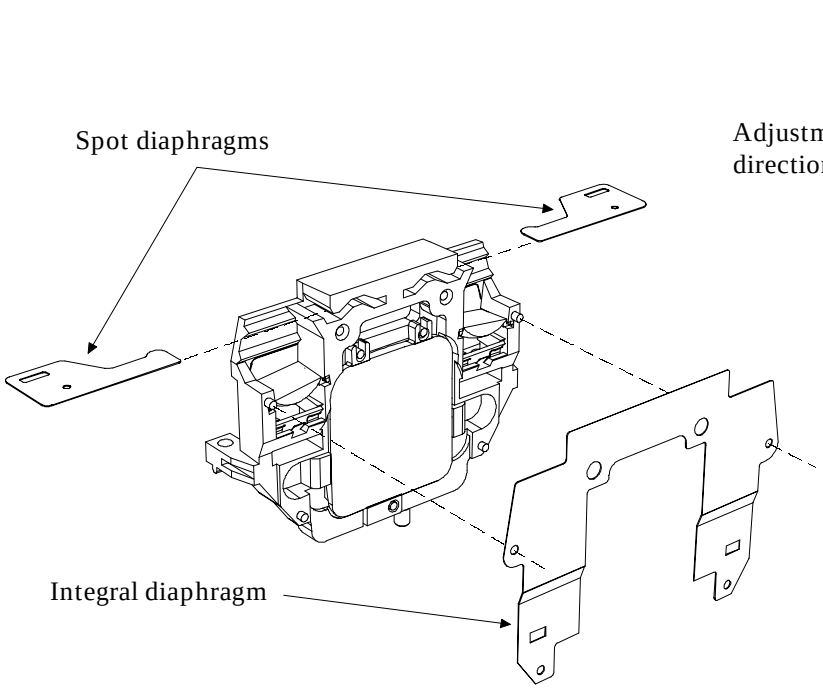
Before the spot position can be adjusted the eye-piece unit and the sensor board must be removed. The sensor board is attached to the sensor unit by two screws.

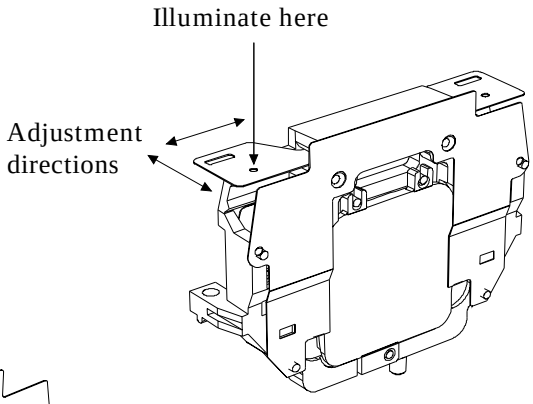
Note! The eye-piece must be rotated fully clockwise before it is removed. If not, it could damage the sensitive plastic lens mounted in the sensor unit next to it.

Mount the finder onto a camera body fitted with the focusing screen adapter V-4705. Illuminate each diaphragm (one at the time) from above with a concentrated light beam. The image of the diaphragm circle will be projected on the screen and is visible on the camera mirror. The image should fill the 12 mm screen circle if the spot position is correctly set.

If an adjustment is required, the diaphragms can be moved according to the sketch until correct position is achieved.

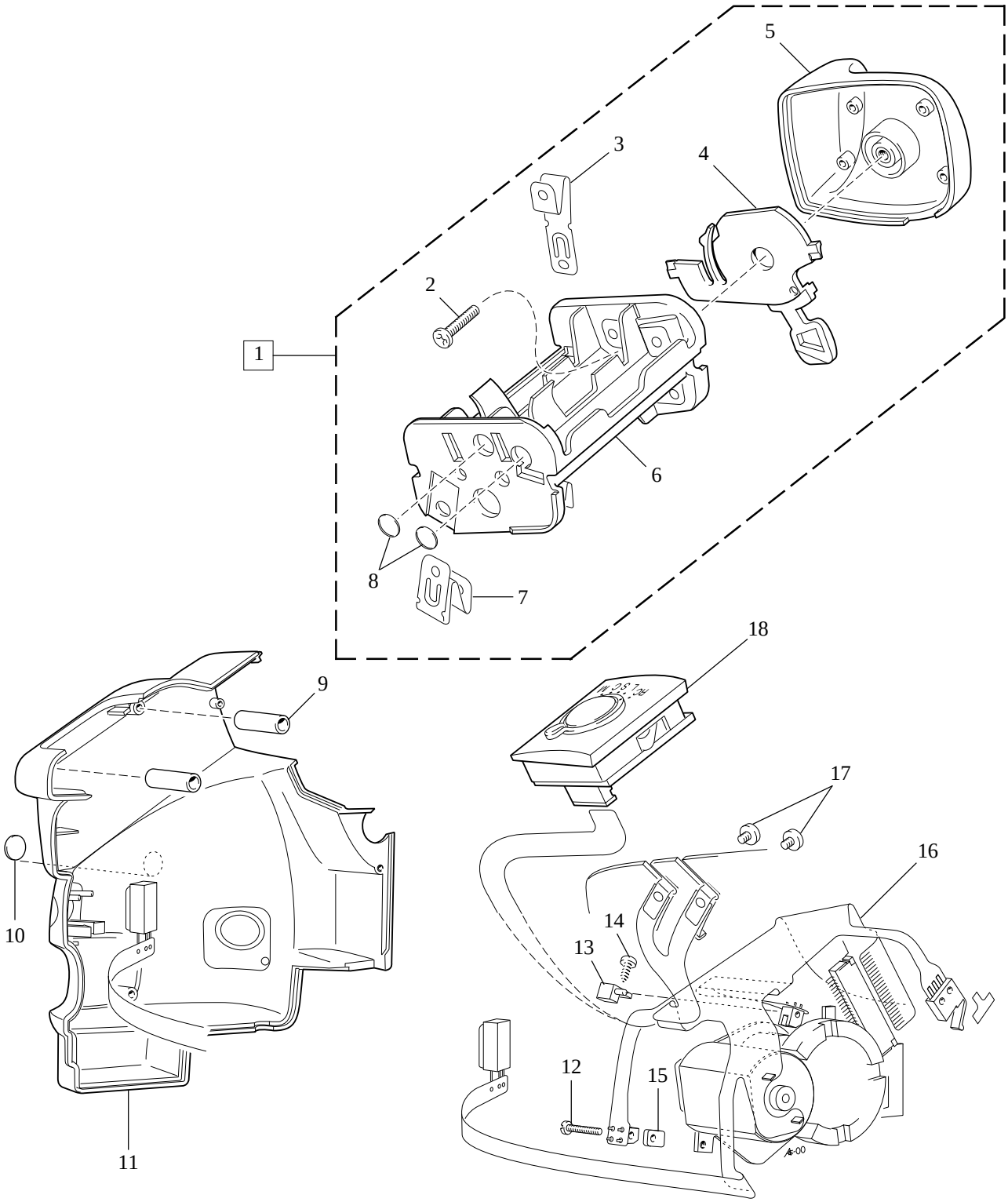
Do not forget to secure with safety lacquer.





Sensor unit 414388

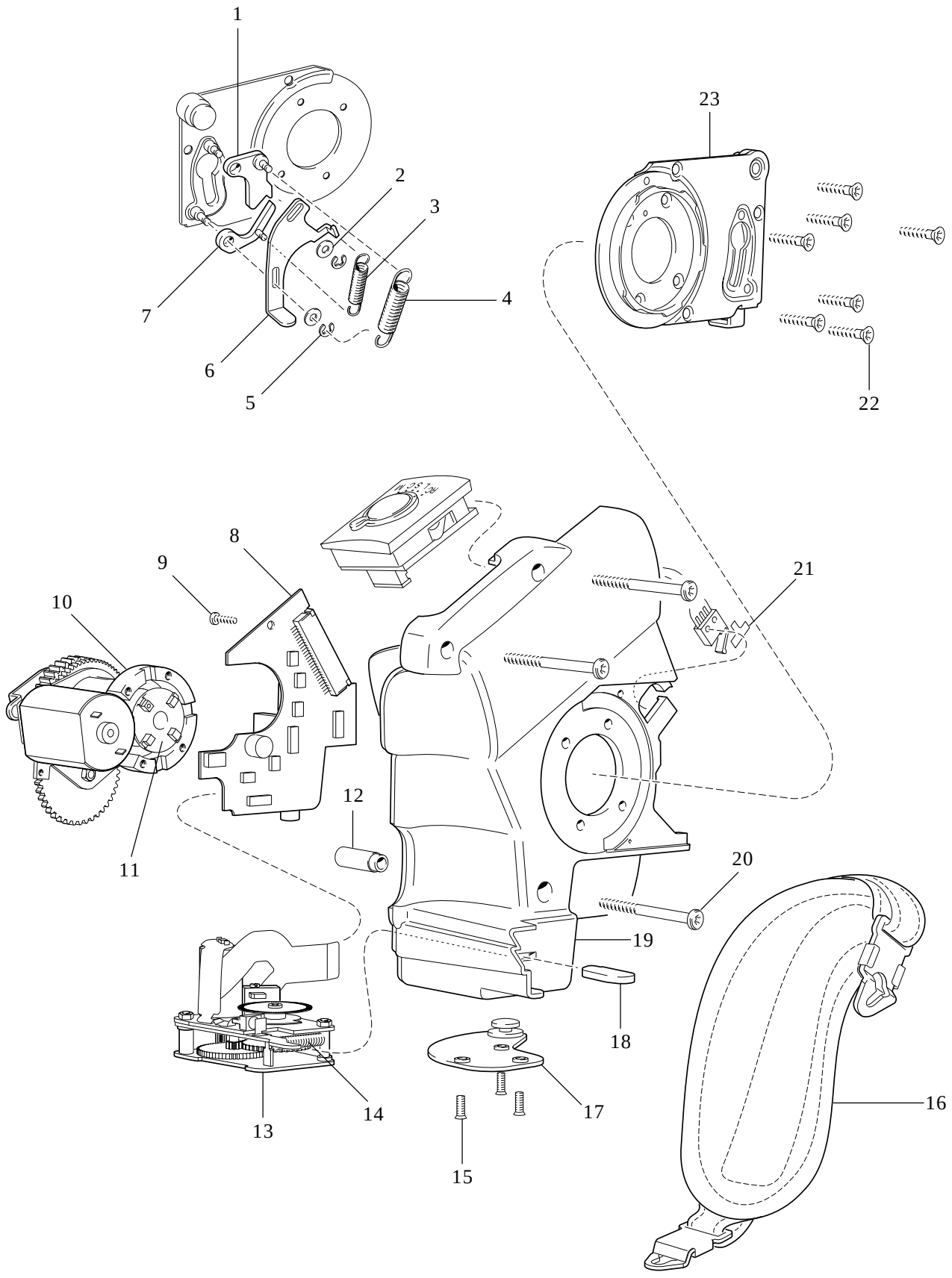
Winder CW



Winder CW

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	438 041	Battery compartment, compl.	
2	1	830 101	Screw	
3	5	438 345	Connection plate	
4	1	438 354	Locking lever	
5	1	438 439	Cover	
6	1	438 324	Battery holder	
7	1	438 348	Connection plate	
8	2	438 472	Insulator	
9	2	438 448	Spacer	
10	1	22 404	Leather	
11	1	438 111	Housing, outer	
12	1	820 383	Screw	
13	1	438 416	Sensor holder	
14	1	826 010	Screw	
15	1	438 456	Spacer	
16	1	438 805	Contact flex	
17	2	826 015	Screw	
18	1	438 088	Mode selector	

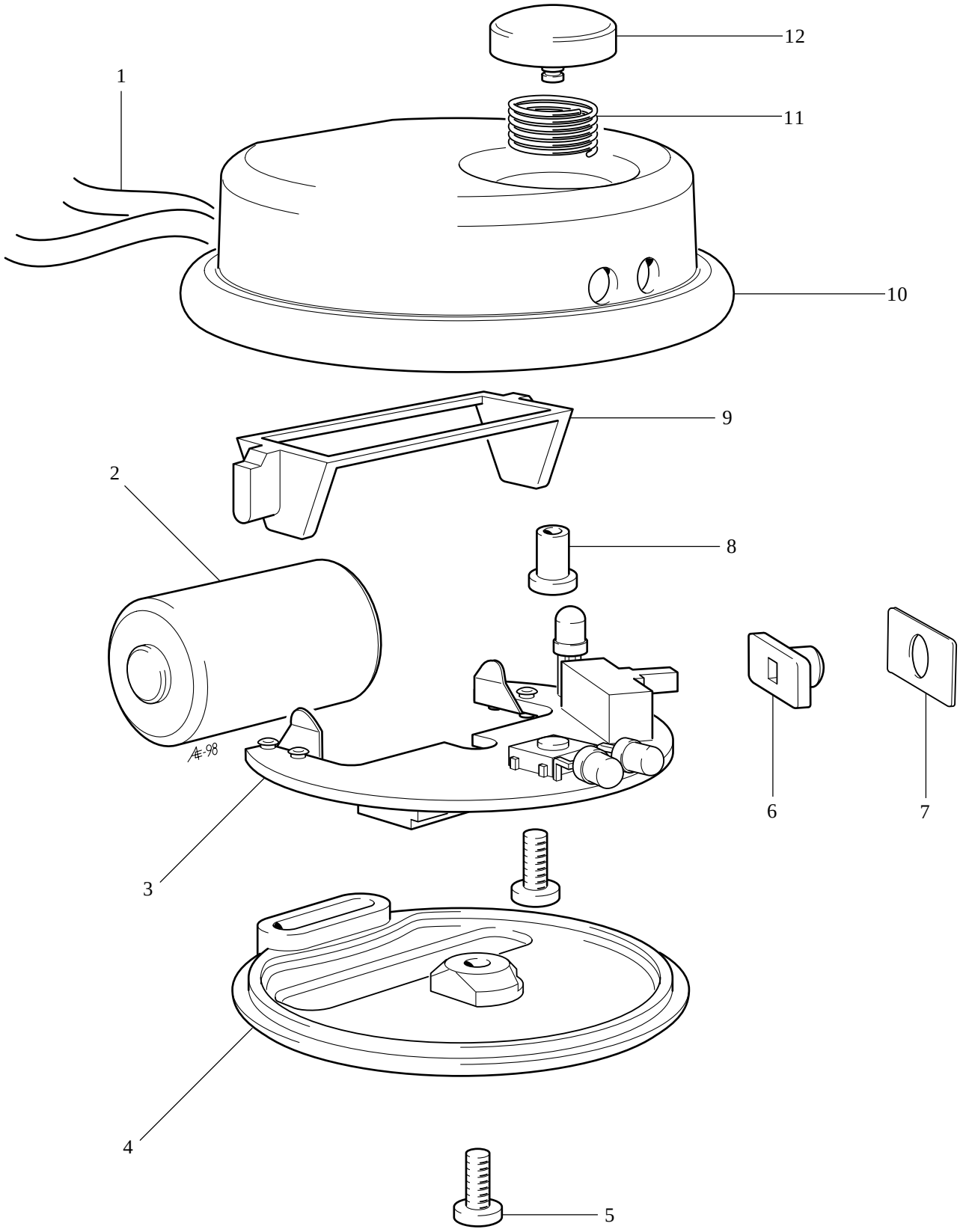
Winder CW



Winder CW

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	438 110	Locking arm	
2	2	810 509	Washer	
3	1	814 804	Spring	
4	1	814 903	Spring	
5	2	817 115	Clip	
6	1	438 435	Arm	
7	1	438 112	Clutch arm	
8	1	438 800	PC board	
9	1	826 027	Screw	
10	1	438 021	Winding unit, complete	
11	1	438 341	Coupling	
12	1	438 449	Spacer	
13	1	438 042	Release unit, complete	
14	1	814 904	Spring	
15	3	829 660	Screw	
16	1	438 120	Leather strap	
17	1	438 116	Plate	
18	1	438 437	Sleeve	
19	1	438 106	Housing, inner	
20	3	826 030	Screw	
21	1	438 441	Tape	
22	7	826 029	Screw	
23	1	438 089	Bayonet plate	Please state serial No.

IR Remote Control



IR Remote Control

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	439 402	Strap	
2	1		Battery	3 volt, type CR-2 Lithium
3	1	439 101	PC board	
4	1	439 322	Cover	
5	2	830 560	Screw	
6	1	439 401	Button	
7	1	439 403	Cover	
8	1	438 442	Stop pin	
9	1	439 405	Support	
10	1	439 321	Housing	
11	1	815 812	Spring	
12	1	438 445	Exposure button	

Winder CW

Specifications Winder CW:

Compatibility:	Hasselblad 503CW and 503CXi
Modes:	Single exposure, continuous exposure, multiple exposure, remote control and lock/off
Winding speeds:	1.05 sec, approx. 0.8 frames/sec in continuous mode
Battery requirement:	6 x AA pen cells (LR6)
Weight:	360g (13 oz) excluding batteries

Specification IR Remote Control:

Battery requirement:	1 x CR-2
Weight:	55g (2 oz)

Repair/Calibration:

The Winder CW requires the following equipment:

- Hasselblad Service Test System 970600
- Adapter Winder CW 970995 (incl. cables)
- Torx T6 screw driver ZZ35
- 503CW camera body

Winder CW

Disassembly:

CAUTION! When handling the circuit board a grounded bench mat and a wrist strap must be used to prevent ESD damage.

- Remove the battery compartment 438041. Unscrew 3 screws 829660 and 1 screw 826029, located to the right of the winder retaining slot.

- Separate the inner/outer housing from each other and carefully loosen the IR-sensor (contact flex) from its attachment.

- Disconnect the mode selector 438088 from the contact flex.

- Rotate one of the gear wheels of the release unit 438042 in order to move the release arm from its outer to its inner (released) position.

- Remove the sleeve 438437.

- Loosen the contact flex of the release unit from the PC board. Loosen 3 screws 826030 and remove the plate 438116 and the release unit 438042.

- Loosen the contact flex 438805 from the PC board. Loosen the screw 826027 and remove the board.

- Loosen carefully the "on/off camera" switch (see page 19:7) which is held by a double-sided tape.

- Loosen 2 screws 826015 and carefully remove the battery contacts.

- Loosen 4 screws 826029 located closest to the coupling 438341 and remove the winding unit together with the contact flex.

- Loosen the screws 820383 and 826010. Remove the "winding home" and the "winding counter" sensors from the winding unit (see page 19:7). Unsolder the contact flex.

- Loosen the remaining 2 screws 826029 and remove the bayonet plate 438089. Remove the springs 814804 and 814903 and the arms 438110, 438112 and 438435.

Winder CW

Reassembly:

CAUTION! When handling the circuit board a grounded bench mat and a wrist strap must be used to prevent ESD damage.

- Lubricate the arms 438110, 438112 and 438435 with Gleitmo 805 K and assemble together with the springs 814804 and 814903 on the bayonet plate 438089.

- Solder the contact flex 438805 and fit the "winding home" and the "winding counter" sensors to the winding unit (see page 19:7).

- Fit the winding unit in the inner housing and secure with 4 screws 826029.

- Carefully fit the battery contacts and secure with 2 screws 826015.

- If necessary, replace the double-sided tape 438441 and place the "on/off camera" switch in its attachment (see page 19:7).

- Fit the PC-board and secure it with the screw 826027. Connect the contact flex to the PC-board.

- Make sure that the release unit 438042 (release arm) is in the inner (released) position and place it in the inner housing. Fit the plate 438116 and secure with 3 screws 826030.
  Fit the sleeve 438437 on the release arm and connect the contact flex to the PC-board.

- Connect the mode selector 438088 to the contact flex and place it in the inner housing.

- Connect the battery compartment (incl batteries) or a power supply set on 9V.

- Connect the winder to the Hasselblad Service Test System and then follow the instructions according to the STS "Users Instructions" (see page 19:7).

- Fit the spacer 438449 in the inner housing and 2 spacers 438448 in the outer housing. Fit the IR-sensor in its attachment and reassemble the housings. Secure with 3 screws 829660 and 1 screw 826029.

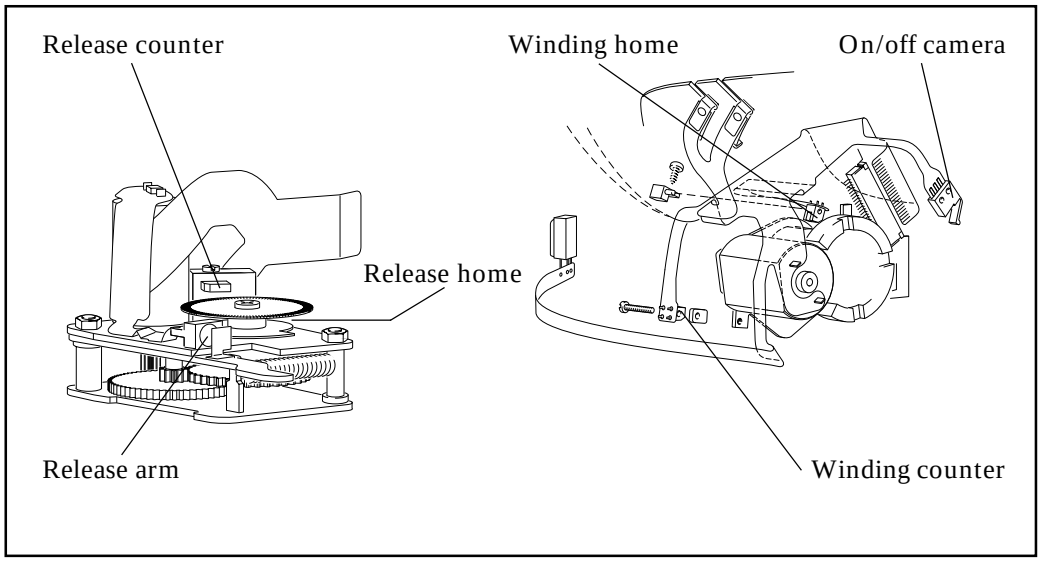
- Connect the winder to the Service Test System again and make a final check.

Winder CW

Link to: VHABSTS

Sensors:

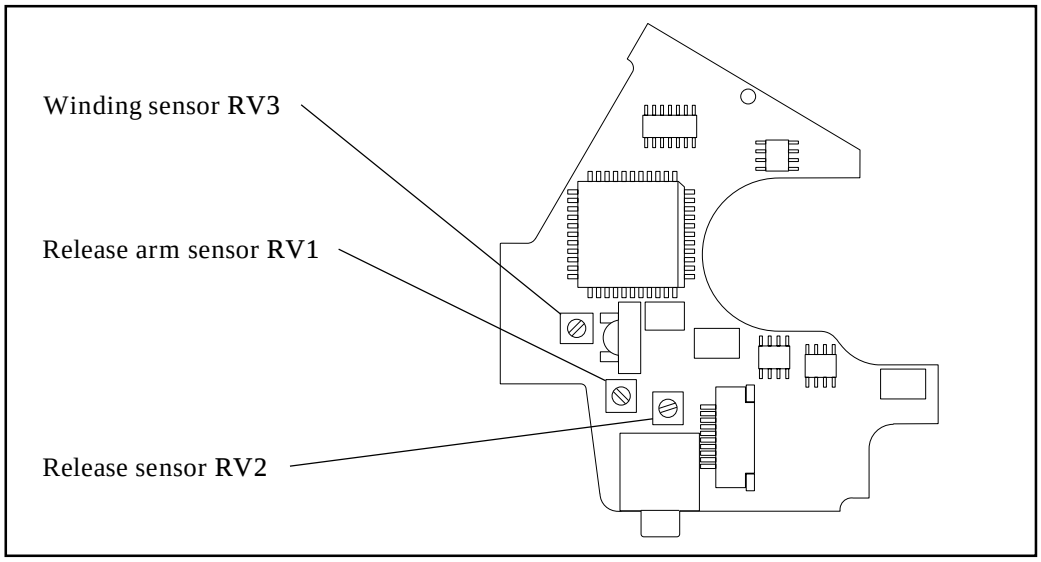
Note! The gears must be rotated manually when checking the sensors.



Release arm:

Position value: 46 - 56 (Outer position)

Sensor calibration:



Winding motor:

No. of pulses: 229 - 231

Release motor:

Reaction time in: Max. 50 ms
Reaction time out: Max. 150 ms

Inner position: 22 - 24
Outer position: 22 - 24

No. of excenter pulses: 89 - 91

D-Flash 40

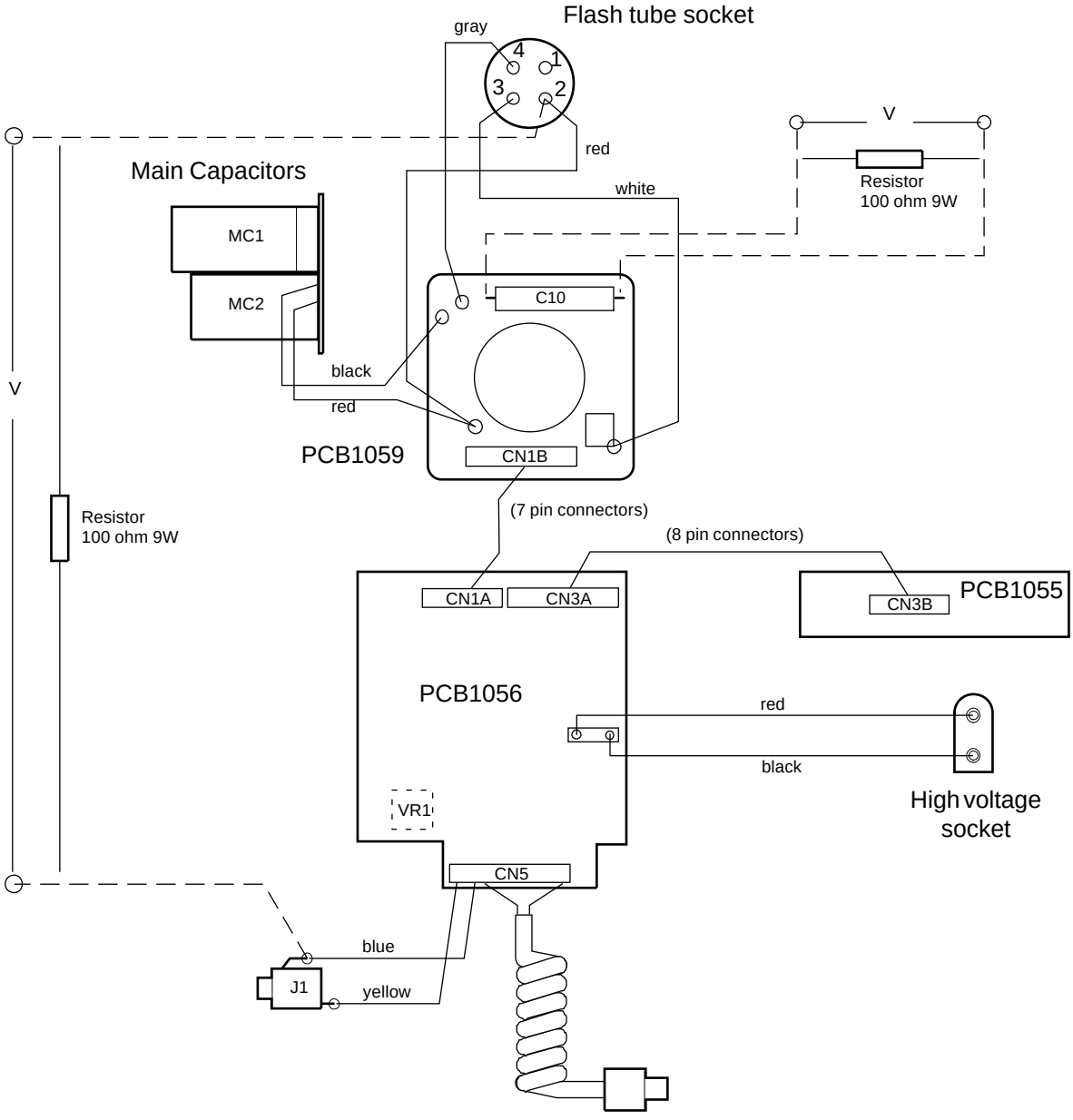
Trouble shooting guide

WARNING!

For safety reasons, the main capacitors MC1 and MC2, must be discharged before disassembly.

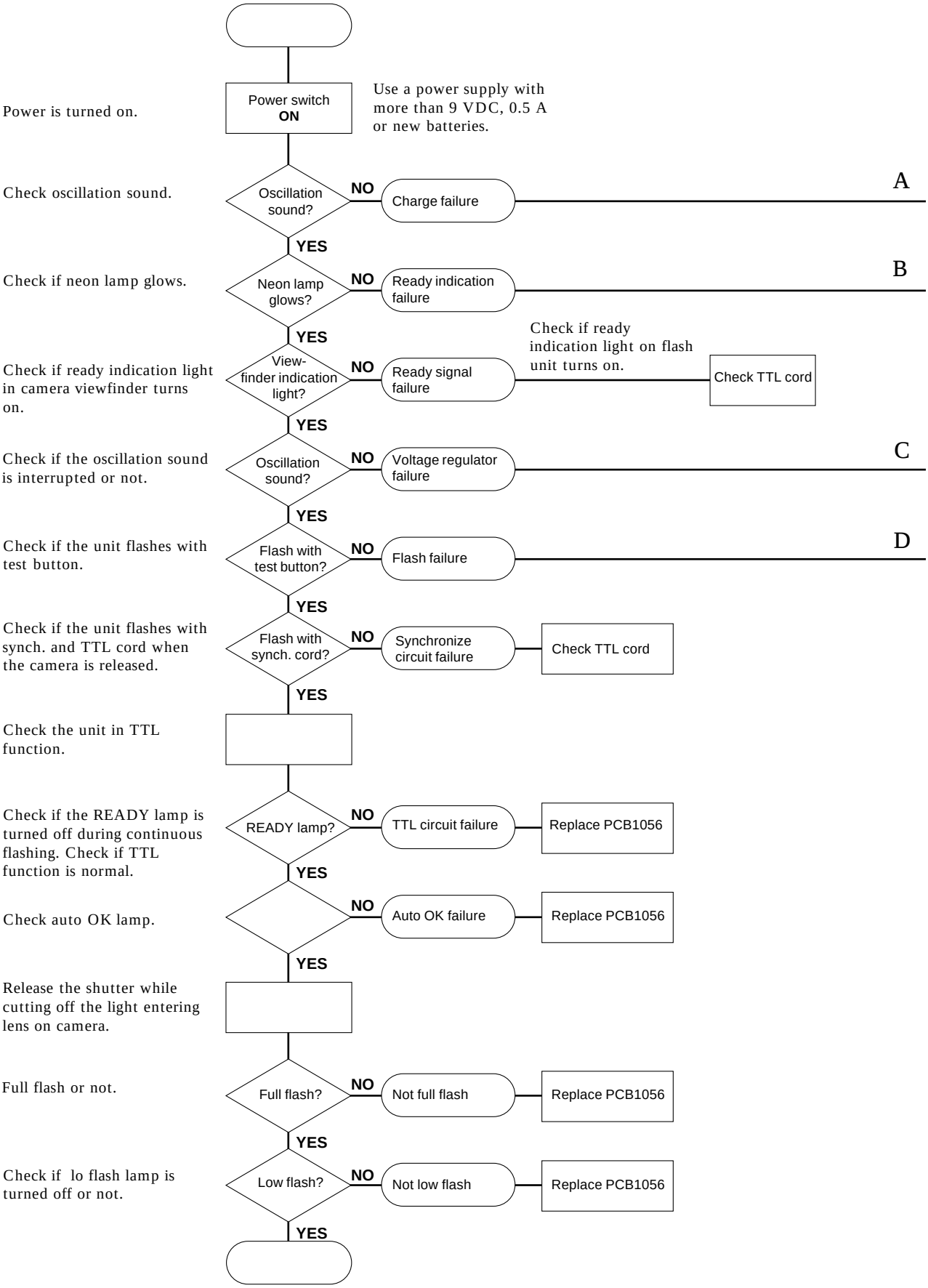
Discharge the capacitors with a 100 ohm 9 W resistor connected between GND of the sync. socket and contact 2 on the flash tube socket according to the sketch below.
The voltage of the capacitors can also be measured at these points.

Capacitor C10, mounted on PCB 1059, must also be discharged according to the sketch but can only be reached after disassembly of the head case.



D-Flash 40

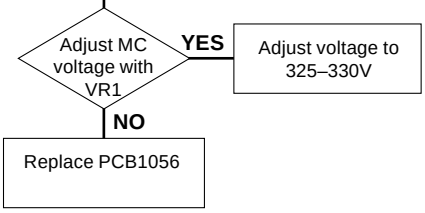
Trouble shooting guide



A

B

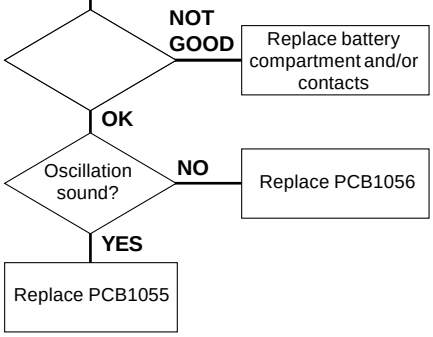
The voltage of the main capacitors (MC) can be measured between GND of the synchro terminal and pin 2 of the flash tube socket.



Inspect the battery compartment and contacts.

Short-circuit between pin 4 and pin 5 of CN3.

Defective BATT-EXT-OFF switch.

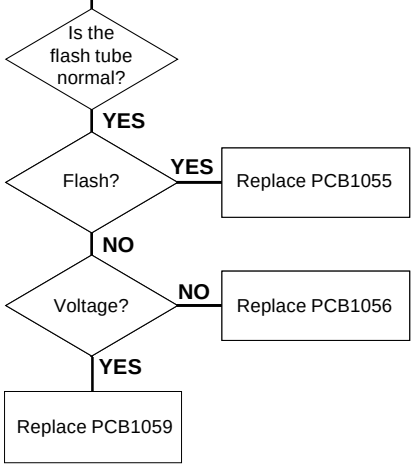


C

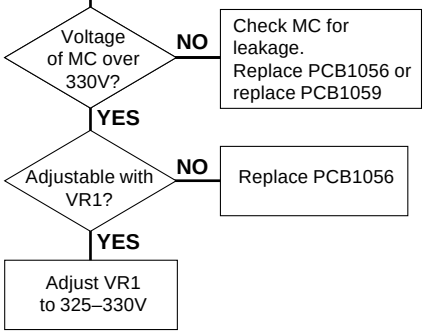
D

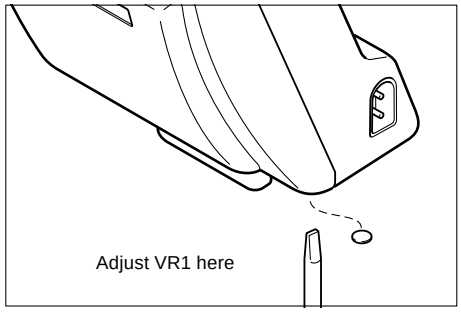
Check if the unit flashes when pins 8 and 6 on CN3 are short-circuited?

The voltage between pins 8 and 6 on CN3 must be 9–15V.

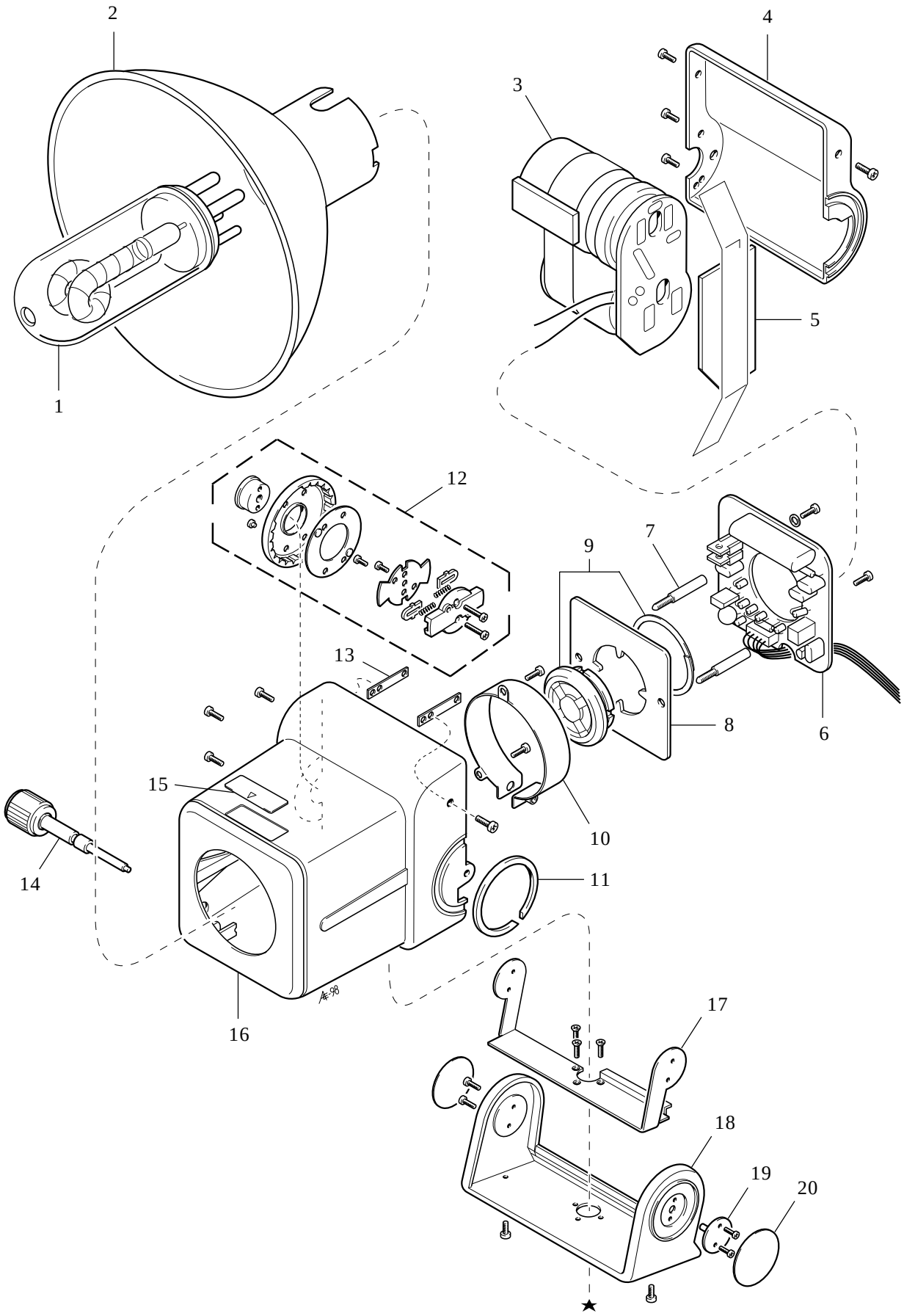


The voltage of the main capacitors (MC) can be measured between GND of the synchro terminal and pin 2 of the flash tube socket.



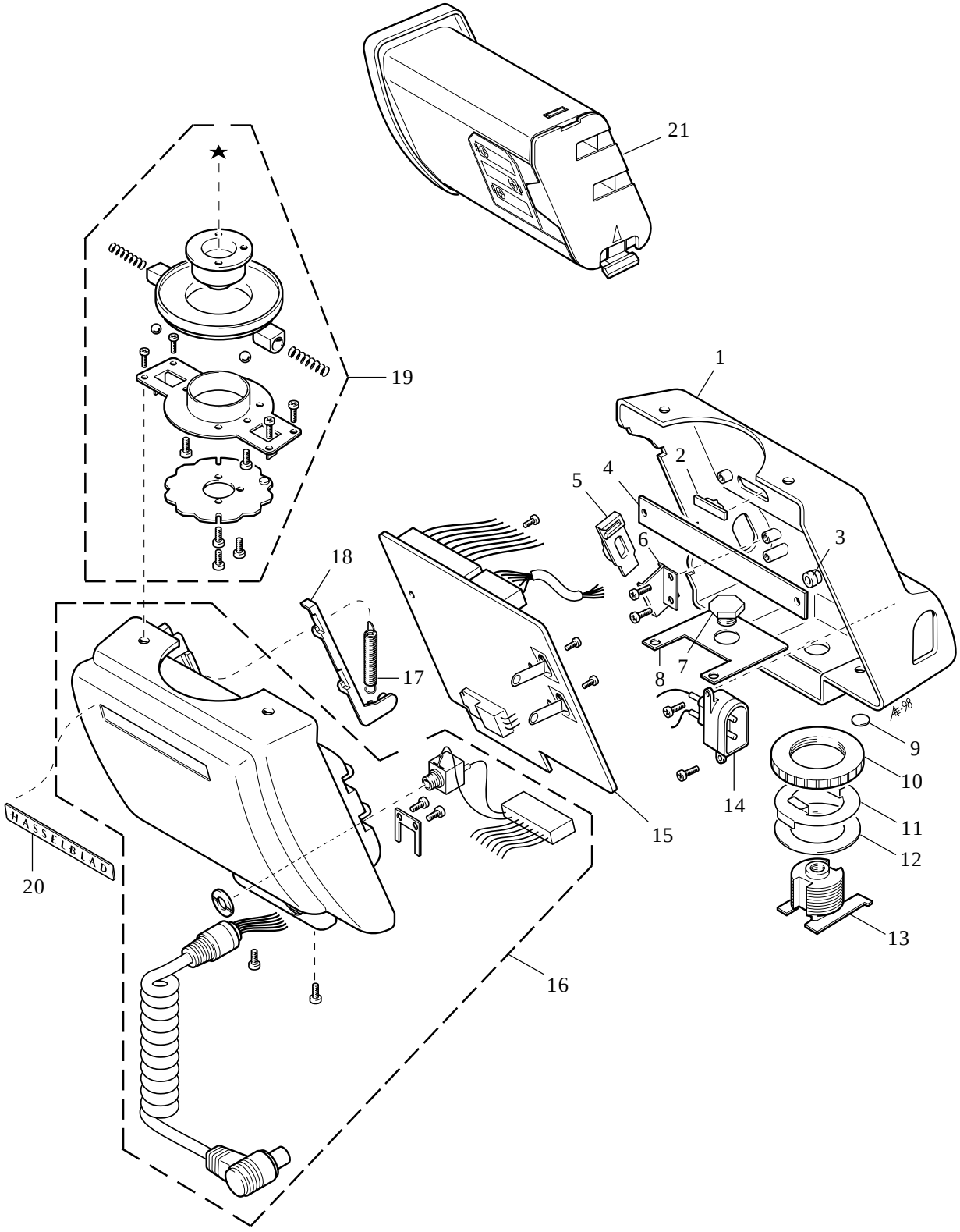


D-Flash 40



Pos No.	Pcs	Spare Part No.	Description	Remark
1	1		Flash tube	Sales code No. 55123
2	1		Reflector	Sales code No. 55108
3	1	K0455S02A	Main capacitors, compl.	
4	1	MAC0550A	Head case, rear	
5	1	ZAA7560A	Insulator	
6	1	K0455S01A	Circuit board, high voltage	
7	2	CAA8781A	Locking screw	
8	1	PAA7477A	Socket cover	
9	1	ENB0103A	Flash tube socket	
10	1	PAB1992A	Locking band	
11	1	NEE0250D	Locking ring	
12	1	ASS0001A	Tilt assembly	
13	2	PAA5308A	Holder	
14	1	CAA7479A	Locking screw	
15	1	GBA7561B	Label	
16	1	MAD0380C	Head case, front	
17	1	PAB1978B	Holder	
18	1	MAC0630A	Bracket	
19	1	CAA8601A	Rotating disc	
20	2	GAA7540A	Cover plate	
	1	ASF0360B	Set of various type screws	

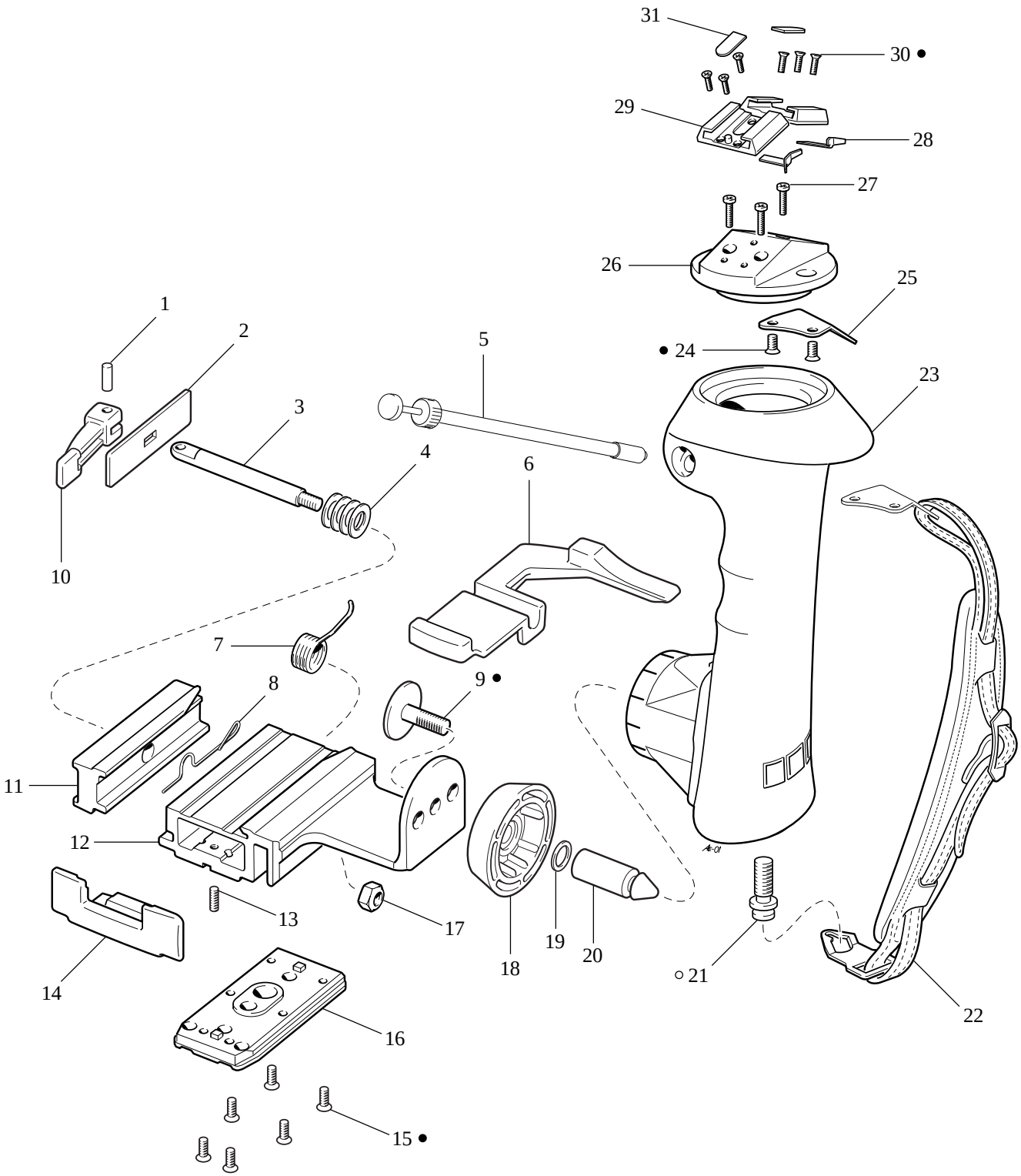
D-Flash 40



D-Flash 40

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	MAD0472B	Lower case, rear	
2	1	MAB1848B	Selector	
3	1	MAA8200A	Test button	
4	1	K0455S03A	Circuit board	
5	1	MAA8610A	Locking device	
6	1	MAA8611A	Holder	
7	1	CAA8607A	Bolt	
8	1	PAA8606A	Plate	
9	1	GNA3370A	Cover	
10	1	MAA8599A	Locking ring	
11	1	PAA8600B	Plate	
12	1	RAA8797A	Rubber ring	
13	1	CAB1983A	Shoe	
14	1	ASZ0213A	High voltage socket	
15	1	K0455S11A	Main circuit board	
16	1	EXW0240A	TTL sync cord assembly	
17	1	SAA8605A	Spring	
18	1	MAA8609A	Locking lever	
19	1	ASS0002A	Swivel assembly	
20	1	13 190-1	Name plate	
21	1	K0455S54A	Battery compartment, compl.	
	1	ASF0360B	Set of various type screws	

Snap-lock flash grip



• = Loctite 243
○ = Loctite 480

Snap-lock flash grip

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	812 604	Pin	
2	1	406 413	Pressure plate	
3	1	406 412	Rod	
4	4	810 918	Spring washer	
5	1	406 419	Cable release	
6	1	406 321	Stop key	
7	1	816 934	Spring	
8	1	406 400	Spring	
9	1	406 414	Screw	
10	1	406 322	Handle	
11	1	406 345	Holder	
12	1	406 325	Base	
13	1	825 905	Screw	
14	1	406 399	Cover	
15	6	829 760	Screw	
16	1	30 763	Tripod foot	
17	1	828 905	Nut	
18	1	406 324	Guide	
19	1	810 926	Washer	
20	1	406 415	Locking pin	
21	1	406 416	Strap button	
22	1	406 353	Strap	
23	1	406 350	Basic grip	
24	2	829 845	Screw	
25	1	406 417	Strap holder	
26	1	406 323	Holder	
27	3	826 039	Screw	
28	2	414 434	Spring	
29	2	406 110	Shoe	
30	6	829 660	Screw	
31	2	405 412	Plate	

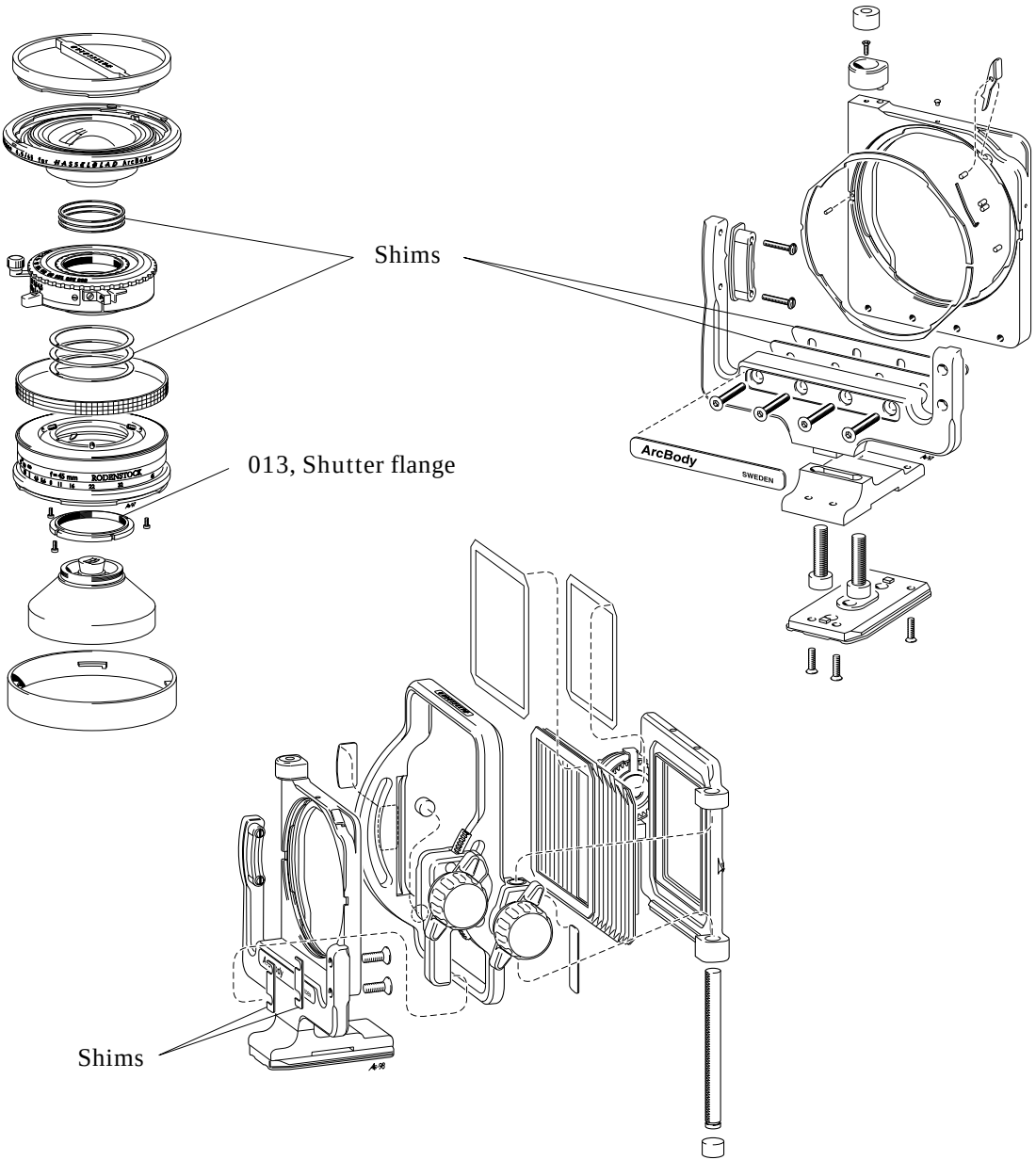
ArcBody/Grandagon lenses

Repair

Please note!
The parallelism and the focal length of the components are pre-set at the production stage by the use of shims. If the camera/lens is dismantled, be sure to include the shims when it is reassembled (see sketches below).
Please note also that only the parts provided with a number are available as spares.

In cases when spare parts without numbers are required, the camera/lens should be sent to Victor Hasselblad AB, Service Department for repair.

For separating the focusing mount and the shutter, unscrew the shutter flange 013 by using the tool V000507700013.



ArcBody

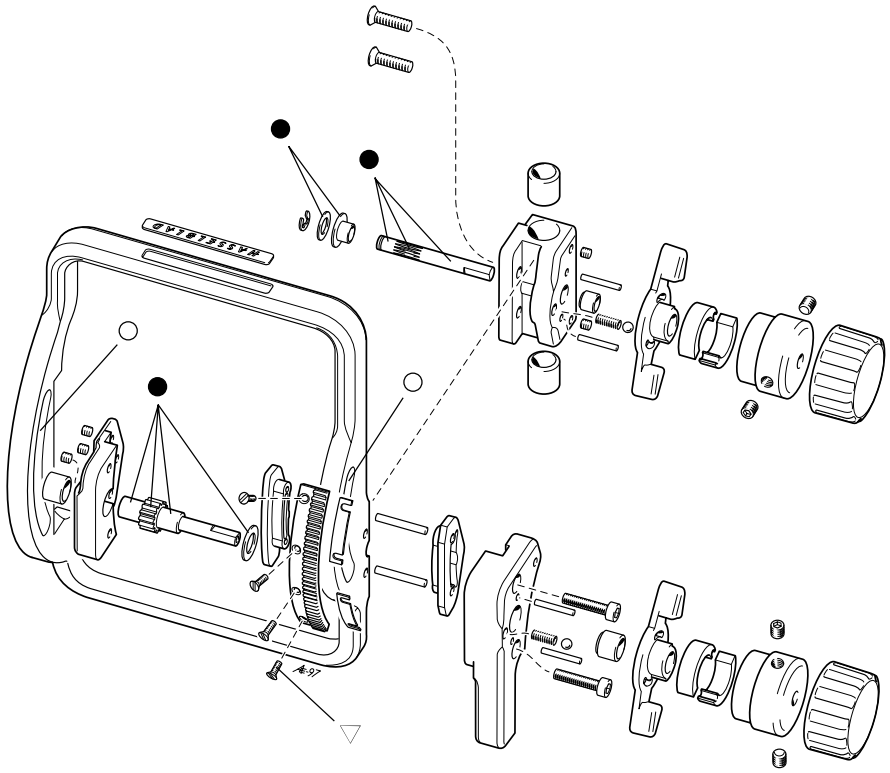
Lubrication

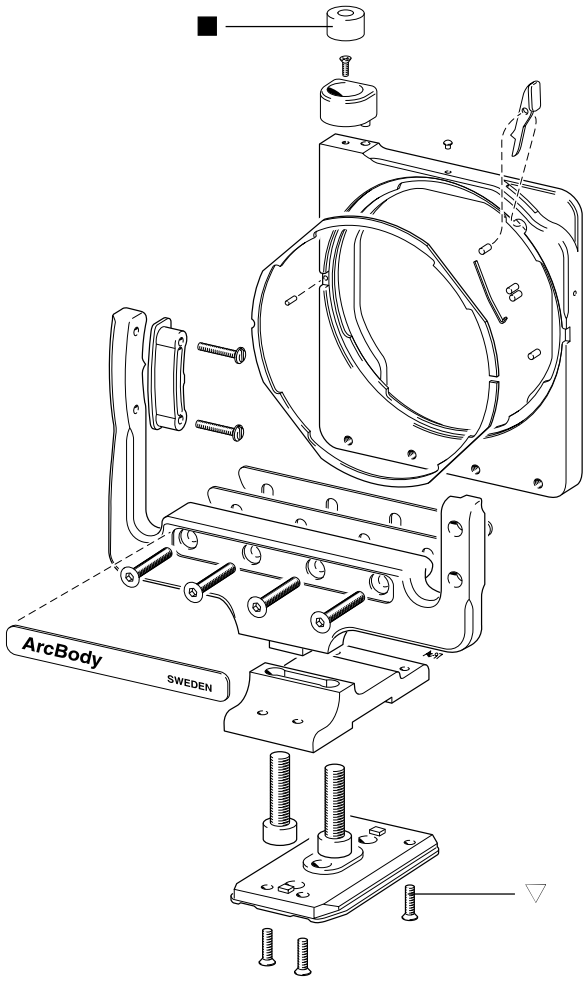
● = Isoflex Topas L32

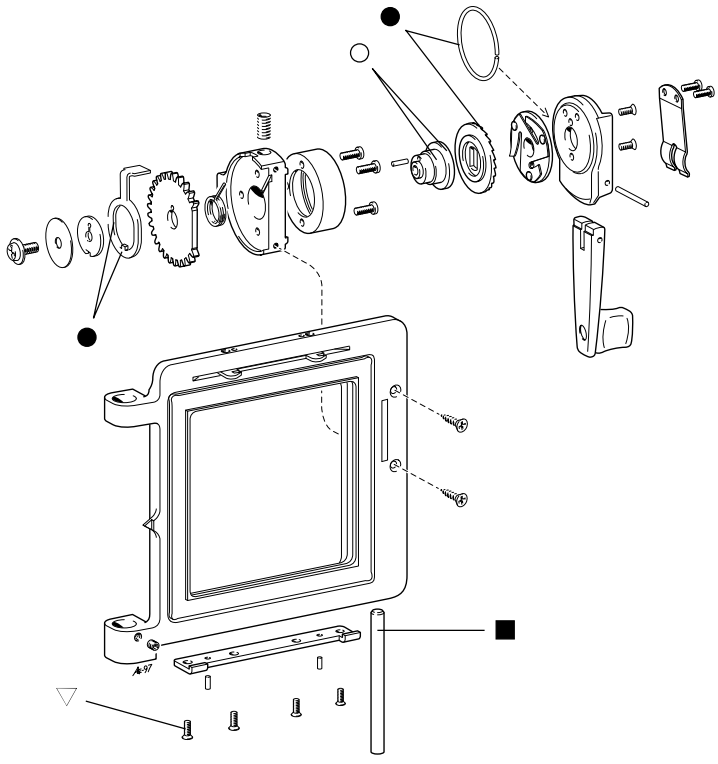
○ = Barierta L25DL

▽ = Loctite 243

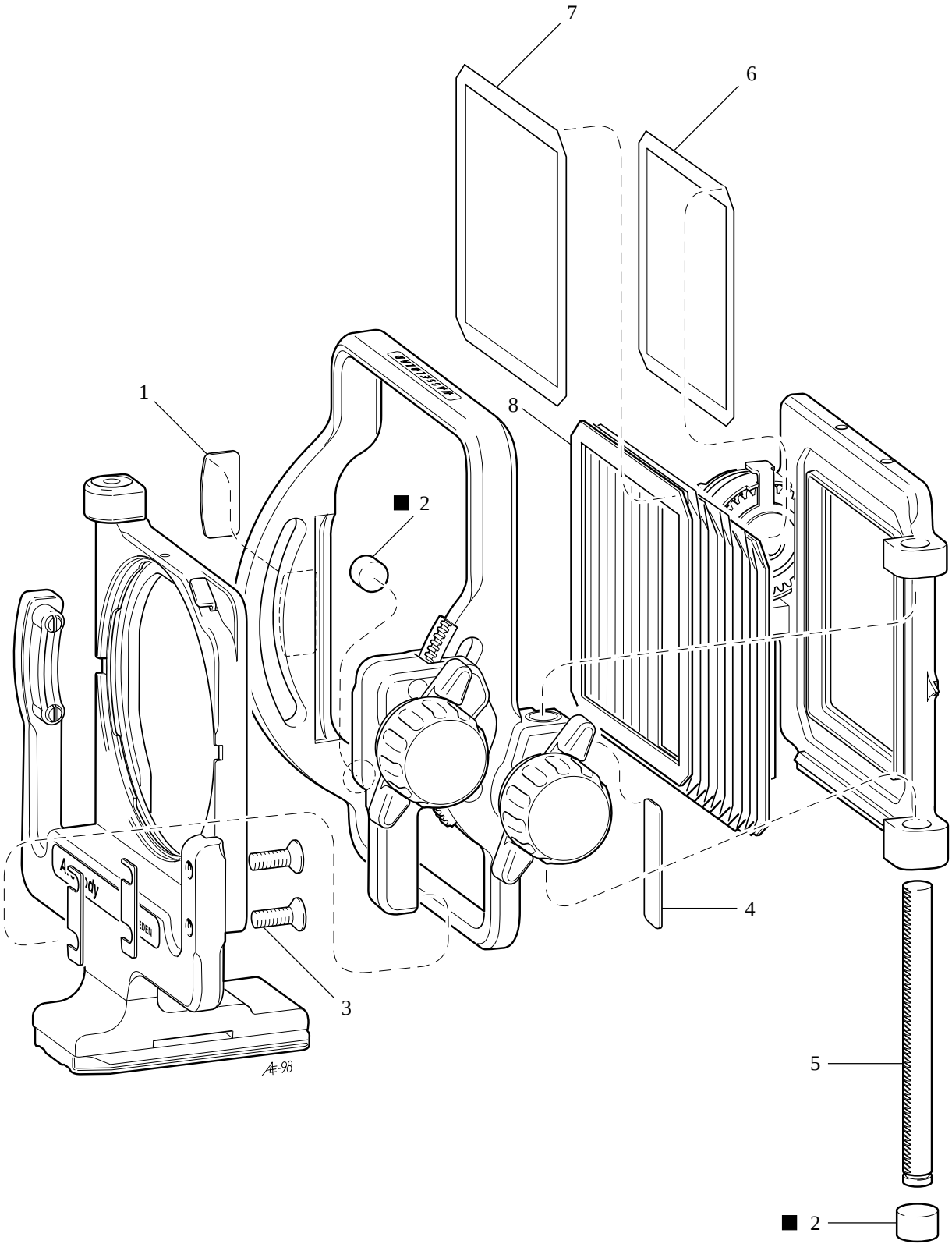
■ = Loctite 415







ArcBody

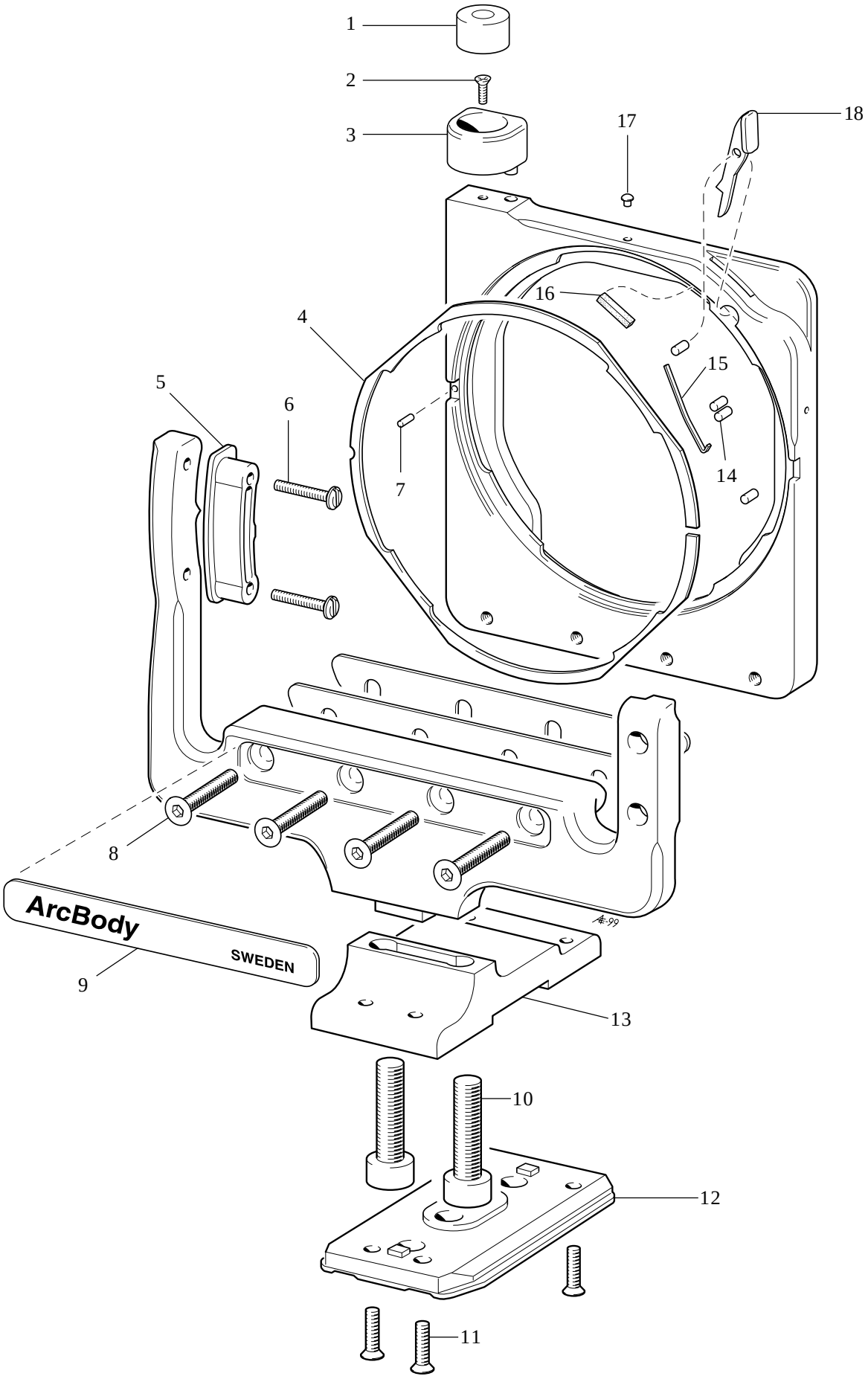


■ = Loctite 415

ArcBody

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	109462	Tilt scale	
2	2	436412	Level	
3	2	824967	Screw	
4	1	109463	Shift scale	
5	1	109468	Rod	Serial No. 452ER1286 - fwd
	1	109468-1	Rod	Below Serial No. 452ER1286
6	1	109421	Tape	
7	1	109469	Tape	
8	1	109058	Bellows	Incl. tape

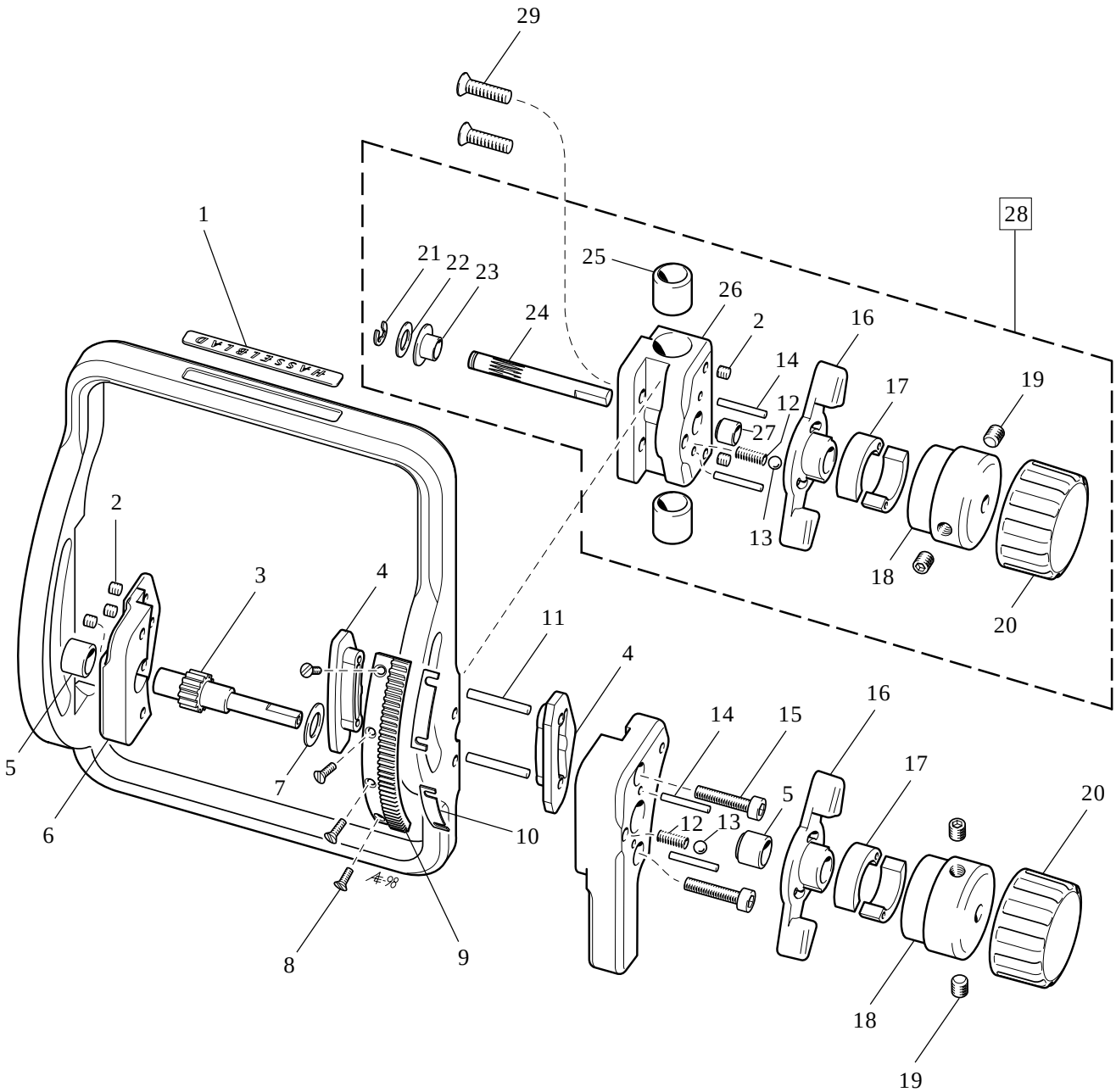
ArcBody



ArcBody

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	436 412	Level	
2	1	829 435	Screw	
3	1	436 102	Holder	
4	1	109 476	Spring	
5	1	109 383	Guide	
6	2	820 684	Screw	
7	1	812 112	Pin	
8	4	824 966	Screw	
9	1	109 475	Name plate	
10	2	821 912	Screw	
11	4	829 790	Screw	
12	1	30 735	Tripod foot	
13	1	109 397	Foot	
14	4	812 311	Pin	
15	1	816 929	Spring	
16	1	109 521	Foam plastic strip	
17	1	103 536	Index	
18	1	435 341	Catch	

ArcBody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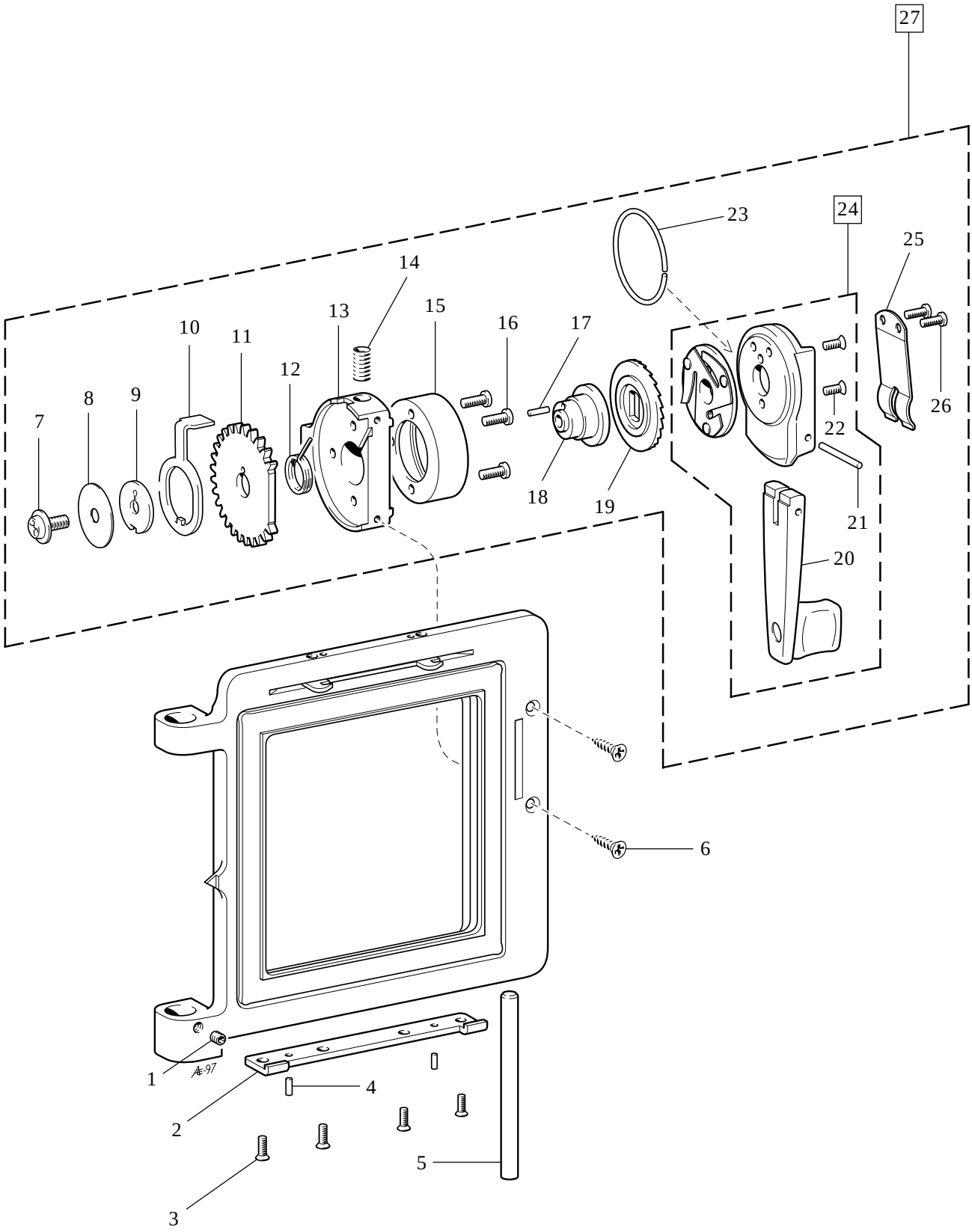
ArcBody

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	13 190 -1	Name plate	
2	5	825 733	Screw	
3	1	109 381	Gear pinion	
4	2	109 380	Slide bar	
5	2	840 905	Bearing	
6	1	109 376	Support, inner	
7	1	810 907	Washer	
8	4	823 451	Screw	
9	1	109 364	Gear ring	
10	2	109 405	Shim (0,05mm)	Alternatively 109 409 (0,10mm)
11	2	812 504	Pin	
12	2	815 811	Spring	
13	2	809 030	Steel ball	
14	4	812 301	Pin	
15	2	821 820	Screw	
16	2	109 374	Lock handle	
17	4	109 457	Block brake	
18	2	109 458	Knob	
19	4	825 960	Screw	
20	2	109 375	Grip	
21	1	817 132	Clip	
22	1	810 809	Washer	
23	1	109 455	Bearing	
24	1	109 454	Gear pinion	
25	2	109 467	Bearing	
26	1	109 382	Shift housing	
27	1	109 456	Bearing	
28	1	109 055	Shift housing, complete	
29	2	824 965	Screw	

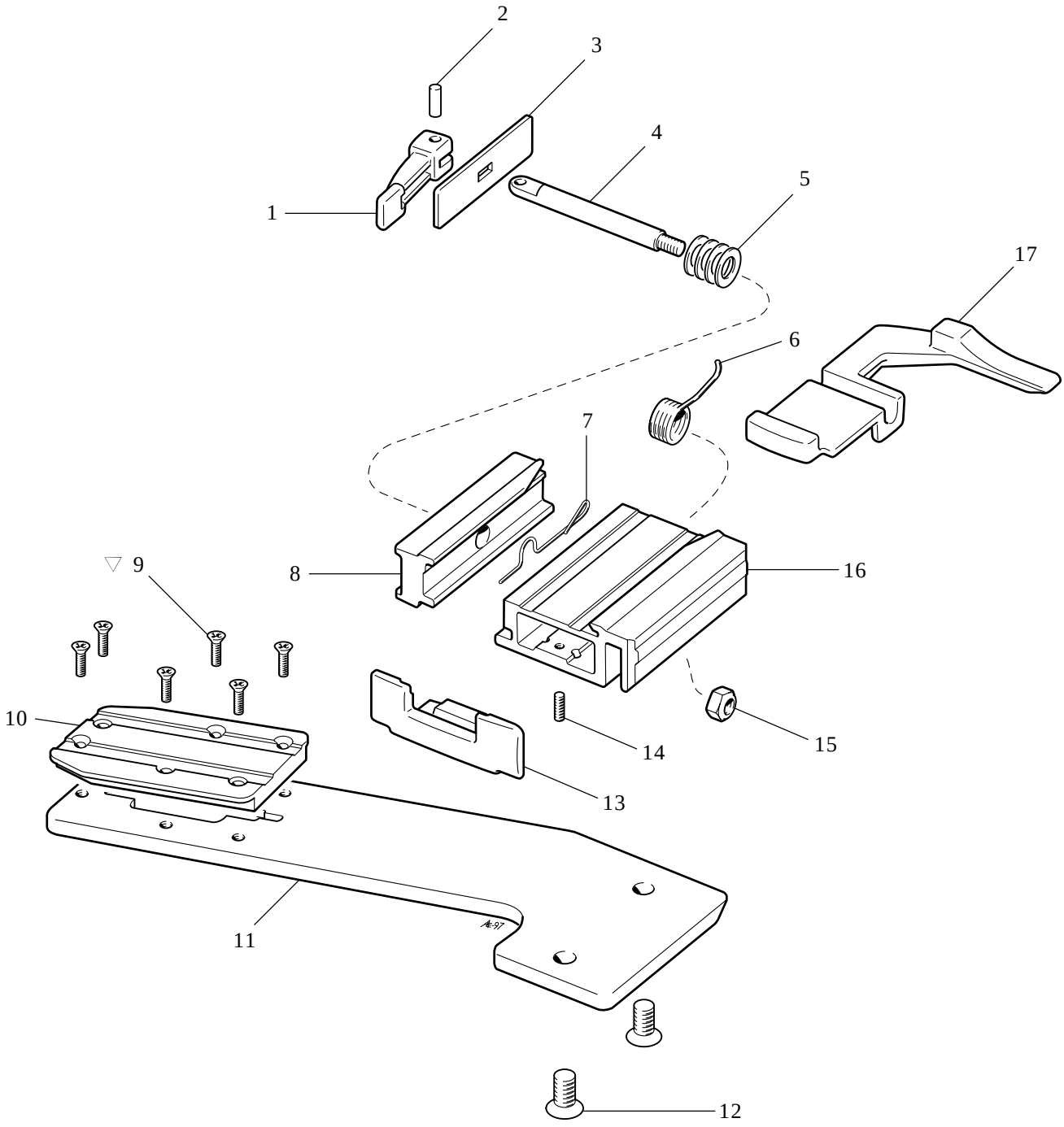
ArcBody



ArcBody

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	825 704	Screw	
2	1	109 401	Support plate	
3	4	821 661	Screw	
4	2	812 311	Pin	
5	1	812 805	Pin	
6	2	308 447	Screw	
7	1	830 060	Screw	
8	1	810 736	Washer	
9	1	109 413	Locking washer	
10	1	109 414	Latch	
11	1	109 403	Gear	
12	1	109 424	Spring	
13	1	109 378	Housing	
14	1	815 754	Spring	
15	1	109 459	Bearing housing	
16	3	826 018	Screw	
17	1	811 201	Pin	
18	1	109 379	Driving shaft	
19	1	22 335	Tooth wheel	
20	1	412 104	Crank arm	
21	1	812 304	Pin	
22	2	823 640	Screw	
23	1	22 327	Nylon string	
24	1	22 331	Crank	
25	1	22 328	Spring	
26	2	821 662	Screw	
27	1	109 114	Crank mechanism, complete	

Camera inverter mount

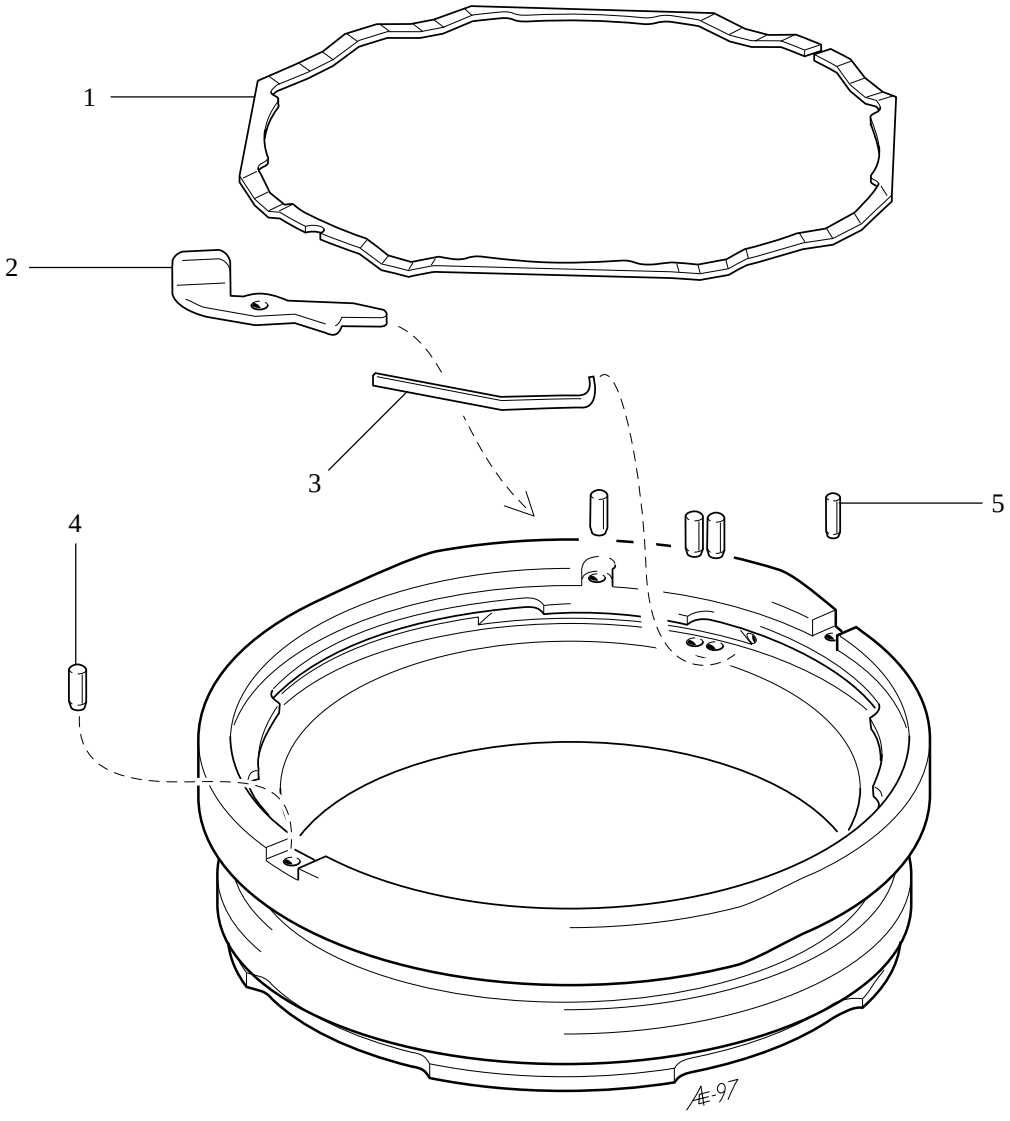


▽ = Loctite 243

Camera inverter mount

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	406 322	Handle	
2	1	812 604	Pin	
3	1	406 413	Pressure plate	
4	1	406 412	Rod	
5	4	810 918	Spring washer	
6	1	816 934	Spring	
7	1	406 400	Spring	
8	1	406 345	Holder	
9	6	829 790	Screw	
10	1	30 763	Tripod foot	
11	1	109 388	Bar	
12	2	824 968	Screw	
13	1	406 399	Cover	
14	1	825 905	Screw	
15	1	828 905	Nut	
16	1	109 398	Base	
17	1	406 321	Stop key	

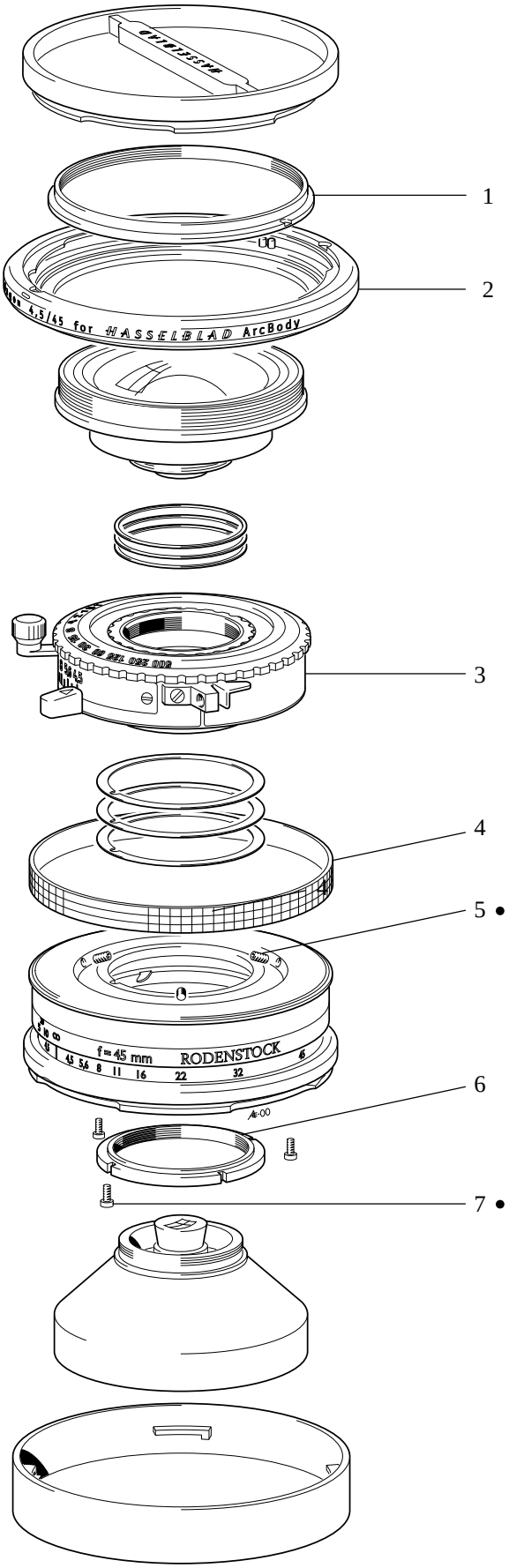
Extension tube ArcBody 8, 16, 26



Extension tube ArcBody 8, 16, 26

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	403 346	Spring	
2	1	435 341	Catch	
3	1	816 929	Spring	
4	4	812 311	Pin	
5	1	812 112	Pin	
			Barrel	Not available as spare part

Grandagon lenses 35 - 45 - 75

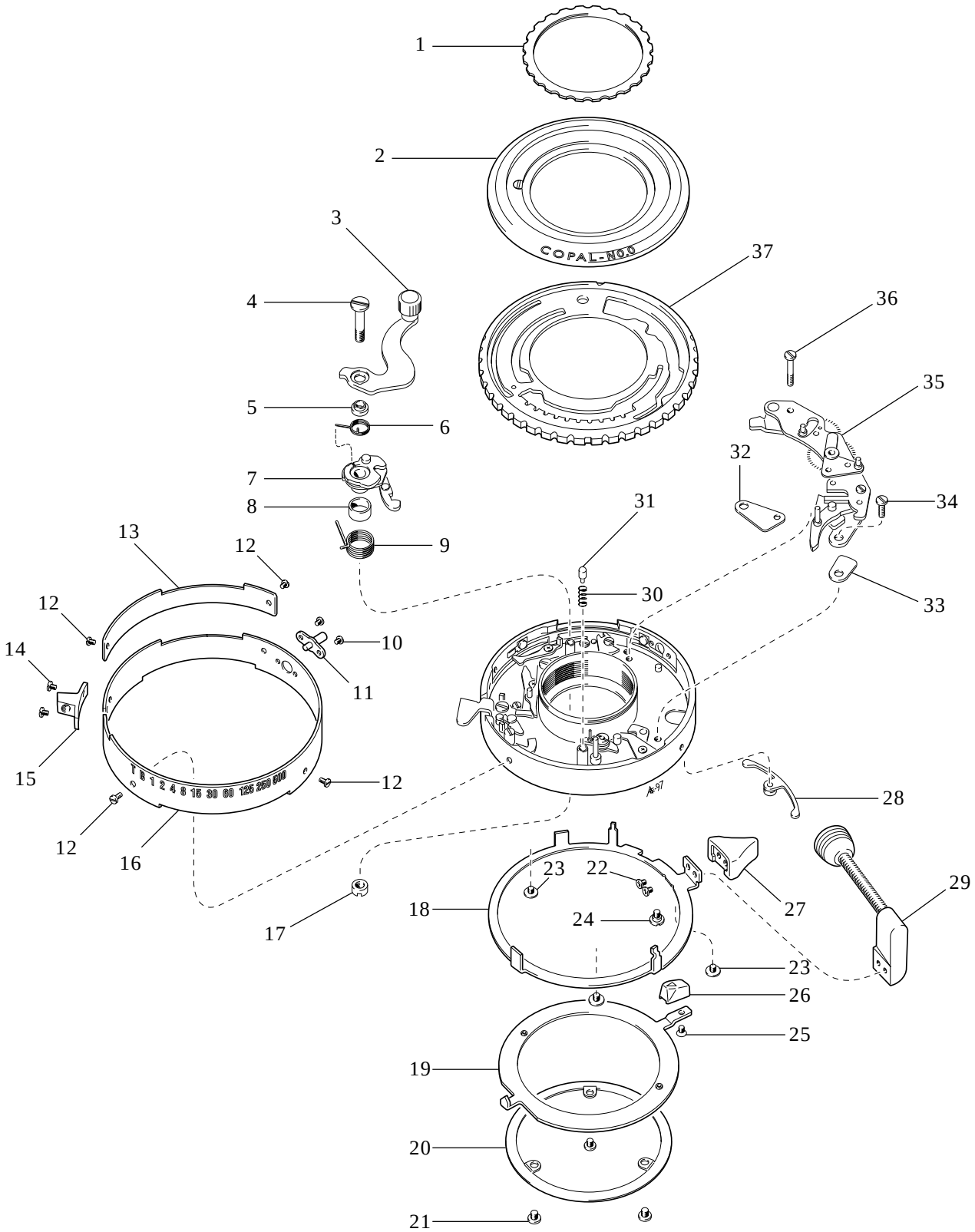


• = Secured with loctite

Grandagon lenses 35 - 45 - 75

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	109 471	Locking ring 35/45	
2	1	109 062	Front bayonet 35	Apo-Grandagon 4,5/35mm
	1	109 063	Front bayonet 45	Apo-Grandagon 4,5/45mm
	1	109 064	Front bayonet 75	Apo-Grandagon 4,5/75mm
3	1	1094-0000-100	Copal 0 shutter, complete	
4	1	2408-010-109	Rubber grip	
5	3	2408-015-112	Screw DIN 914	
6	1	013	Shutter flange	
7	3	2408-015-111	Screw DIN 912	

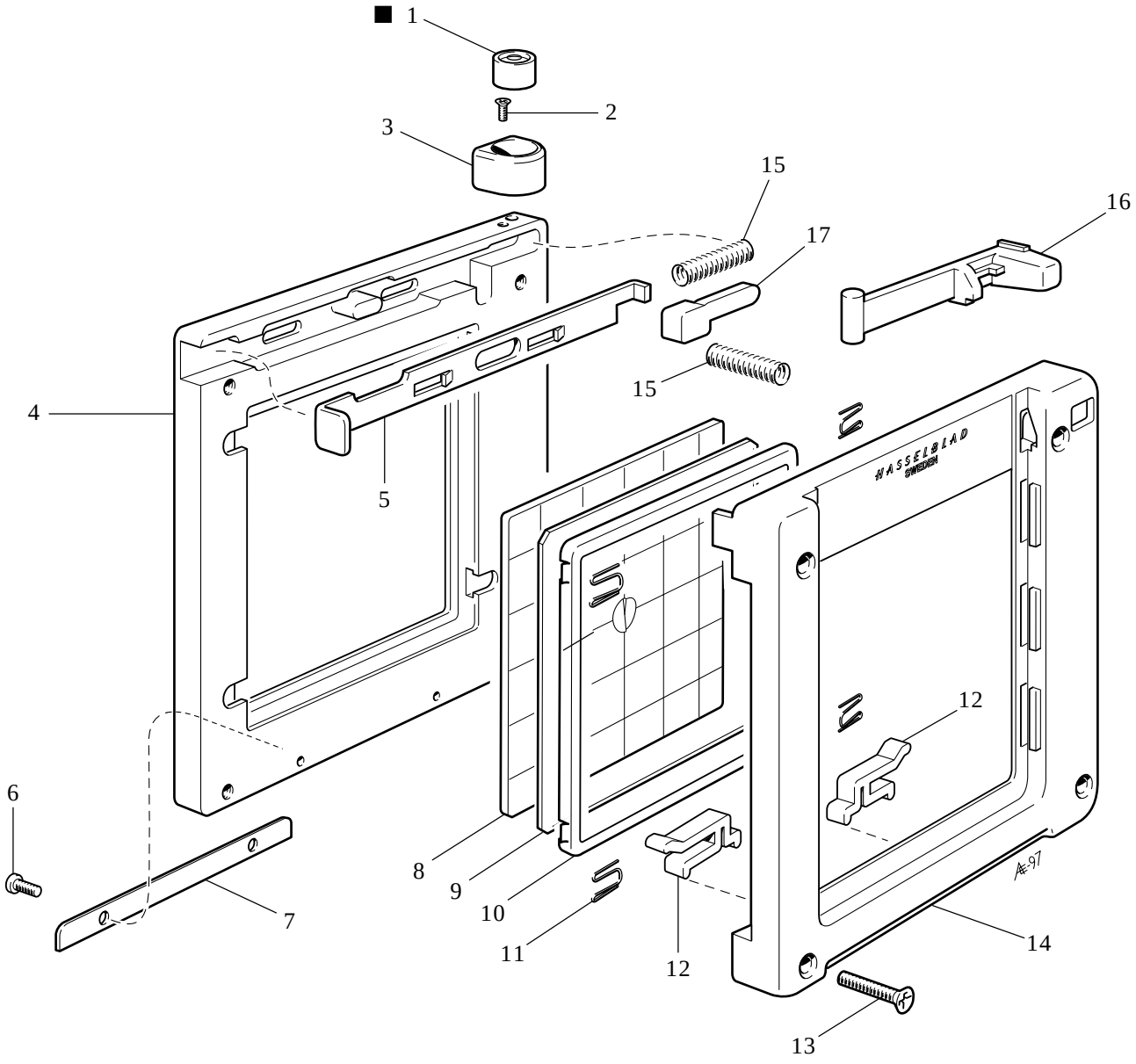
Grandagon lenses 35 - 45 - 75



Grandagon lenses 35 - 45 - 75

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	012	Front plate nut	
2	1	011	Front plate	
3	1	301-3	Change lever	
4	1	301-6	Screw	
5	1	301-5	Change lever collar	
6	1	301-4	Spring for 301-3	
7	1	301	Main cocking lever	
8	1	301-2	Main spring collar	
9	1	301-1	Main spring	
10	2	113-1	Screw	
11	1	113	Sync socket	
12	4	111-1	Screw	
13	1	0005-082-111	Diaphragm scale 35	Apo-Grandagon 4,5/35mm
	1	0005-081-116	Diaphragm scale 45	Apo-Grandagon 4,5/45mm
	1	0005-077-120	Diaphragm scale 75	Grandagon-N 4,5/75mm
14	2	102-1	Screw	
15	1	102	Cable release socket	
16	1	110	Shutter speed scale	
17	1	301-7	Nut for 301	
18	1	107	Preview ring	
19	1	108	Diaphragm ring	
20	1	109	Diaphragm retainer	
21	3	109-1	Screw	
22	2	107-2	Screw	
23	3	107-5	Screw	
24	1	107-4	Screw	
25	1	108-2	Screw	
26	1	108-1	Diaphragm lever	
27	1	107-1	Preview knob	
28	1	107-3	Preview ring click	
29	1	0005-082-117	Preview arm 35	Apo-Grandagon 4,5/35mm
30	1	402-1	Click spring	
31	1	402-2	Click	
32	1	401-1	Governor sheet A	
33	1	401-2	Governor sheet B	
34	1	401-4	Set screw for 401	
35	1	401	Slow speed governor	
36	1	401-3	Screw	
37	1	402	Timing dial	
		1094-0000-100	Copal 0 shutter	Complete

Focusing screen adapter, standard

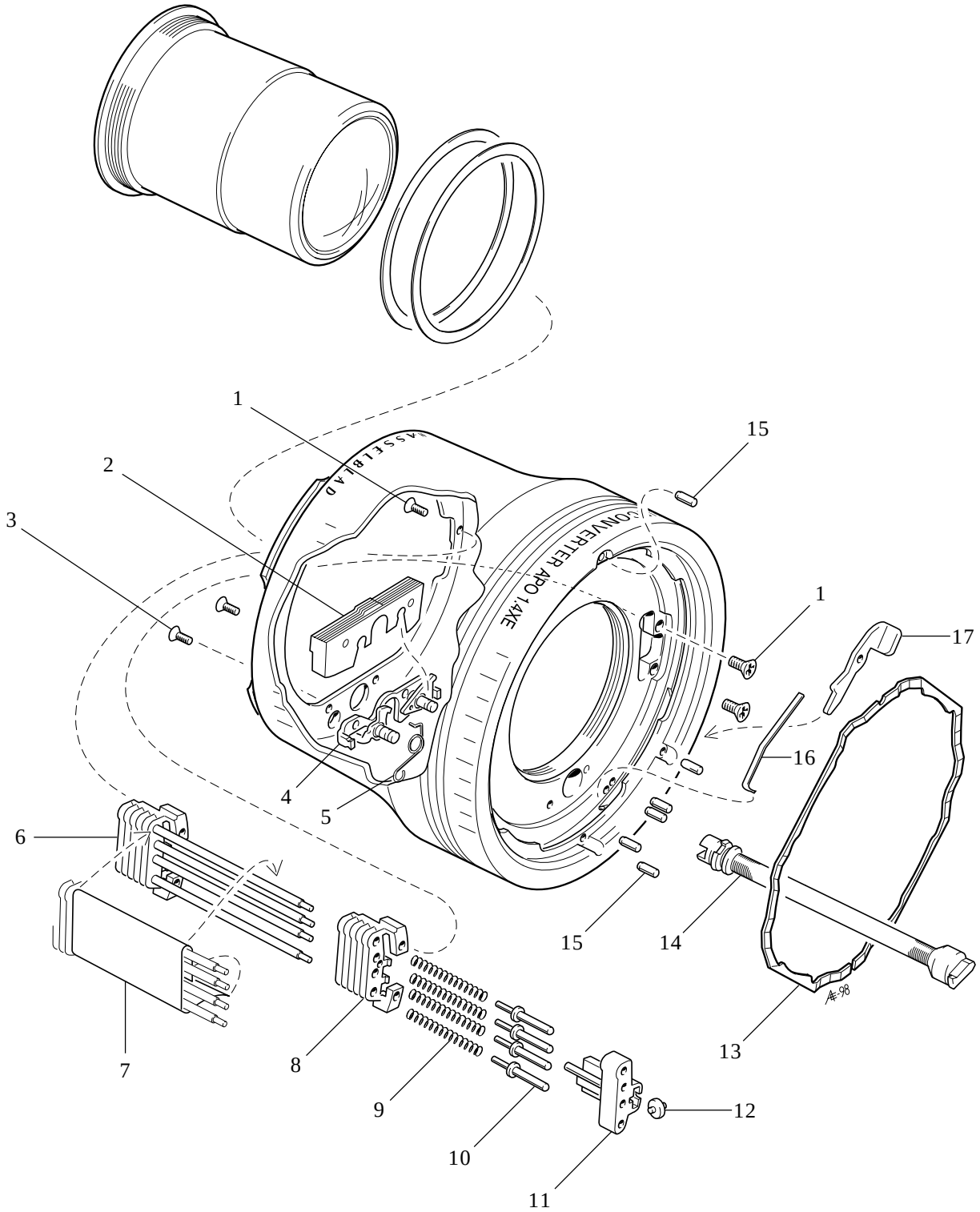


■ = Loctite 415

Focusing screen adapter, standard

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	436 412	Level	
2	1	829 435	Screw	
3	1	436 102	Holder	
4	1	436 323	Frame	
5	1	402 475	Locking arm	
6	2	830 440	Screw	
7	1	402 476	Holder	
8	1	413 323	Focusing screen	
9	1	413 415	Glass	
10	1	109 517	Frame	
11	4	302 429	Glass holder	
12	2	436 407	Spring	
13	4	830 480	Screw	
14	1	436 324	Rear plate	
15	2	815 808	Spring	
16	1	436 359	Locking arm	
17	1	436 409	Spring support	

Teleconverter APO 1.4XE



Teleconverter APO 1.4XE

Pos No.	Pcs	Spare Part No.	Description	Remark
1	3	826 002	Screw	
2	1	435 342	Cover	
3	2	829 325	Screw	
4	1	435 041	Locking mechanism	Incl. 816 304
5	1	816 304	Spring	
6	1	435 108	Holder	
7	1	435 430	Reflection protector	
8	1	435 353	Holder	
9	4	815 513	Spring	
10	4	435 402	Contact pin	
11	1	435 111	Holder	
12	1	435 404	Roller	
13	1	403 346	Spring	
14	1	435 104	Key	
15	6	812 311	Pin	Alternatively 812 313/314
16	1	816 929	Spring	
17	1	435 341	Catch	
			Optics	Not available as spare part
			Housing	Not available as spare part

Zoom lens FE 4.8/60 - 120 mm

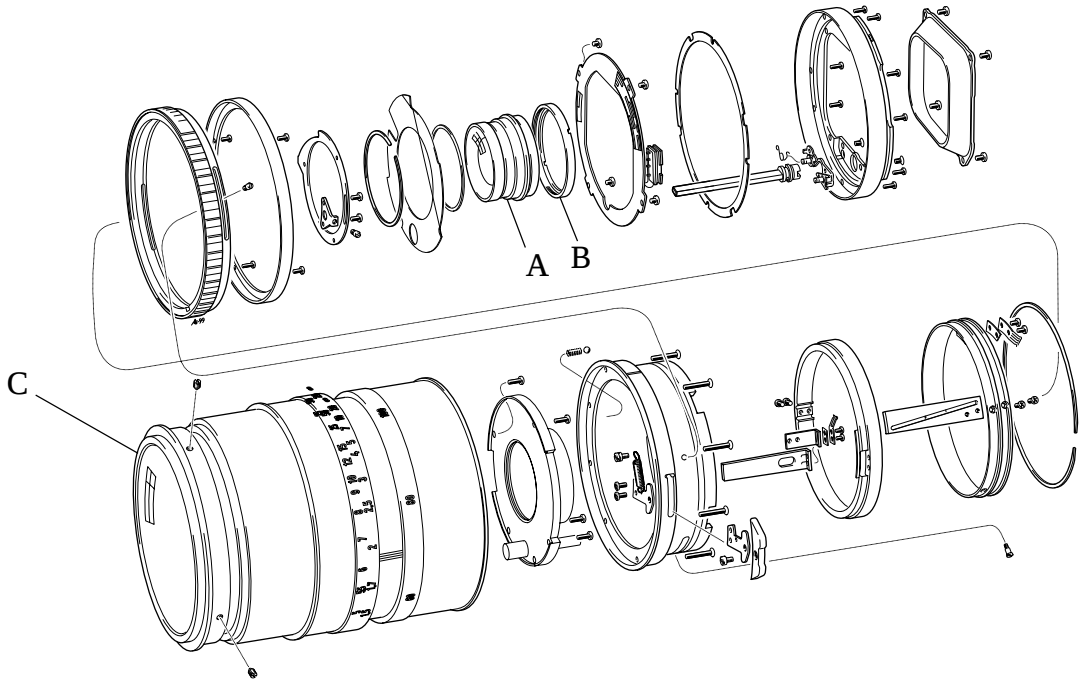
General

The Hasselblad zoom lens FE 60 - 120 is disassembled and reassembled according to the exploded views, page 25:5, 25:6 and 25:7.

Note! All screws and the front number ring are secured with Loctite and/or safety lacquer and must be accordingly secured at assembly.

Note! Before removing the rear lens group (A), held by the retaining ring (B), the position of the lens group in the diaphragm barrel must be marked out.
This, to achieve the same optical performance as before disassembly.

In cases of repair work of the focusing mount and the zoom function (C), the complete lens must be sent to VHAB, Service Department for repair.



Zoom lens FE 4.8/60 - 120 mm

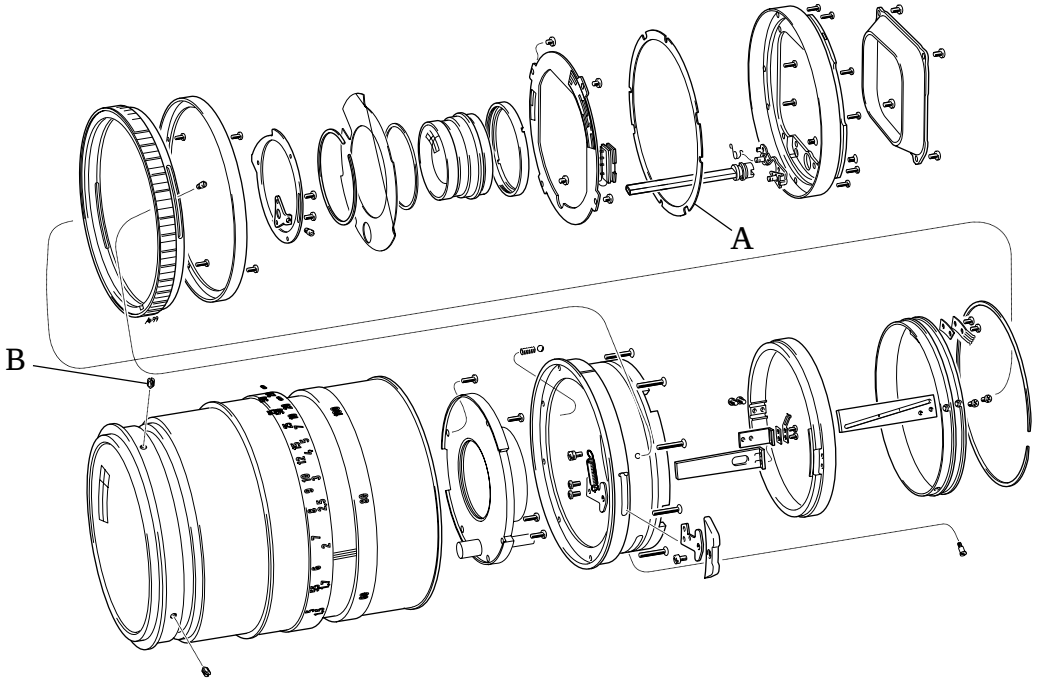
Repair

Adjustment/check of the infinity position:

If an adjustment of the infinity position is required, apart from an auto collimator, a lens holder like the Hasselblad V-4937 with built in movable mirror must be used. (The lens holder V-4937 is designed to be used together with horizontal type collimators). The focal length of the collimator must be minimum 300 mm.
The lens flange focal length is 74.9 mm ± 0.05 mm.
The deviation at infinity between 120 and 60 mm setting must not exceed 0.05 mm.
The adjustment of the infinity is made in the production by adding a combination of spacers (A) in different thicknesses behind the bayonet plate and by rotation of the front group. For reference of the assortment of spacers, please see the specification page 25:6.

Proceed as follows:

- The lens should be fully assembled except for the number ring (ADK1371J) and the front tube (ADK1368K). Make sure that all original spacers are refitted.
- Untighten the four retaining screws (B) carefully. Please note that the screws are sealed with safety lacquer.
- Mount the lens in the lens holder for collimator inspection.
- Set the focusing ring to infinity and the zoom ring to 120 mm position.
- Rotate the front group until the infinity image is achieved by looking in the collimator. For convenience, use the tool (ADK1KJ45) when rotating.
- Set the zoom ring to 60 mm position with the focusing ring still kept in the infinity setting.
- If necessary, readjust the front group to obtain the infinity image again.
- Set the zoom ring to 120 mm and recheck.
- Repeat the front group rotation setting until 60/120 mm positions have the same (not necessarily 74.9 mm) flange distance within 0.05 mm.
- Adjust with spacers (if necessary) to ensure the 74.9 mm flange distance.



Zoom lens FE 4.8/60 - 120 mm

Repair

Adjustment/check of the aperture unit (exploded view and specification, page 25:7):

- Reassemble the aperture unit completely except for the locking ring (95258K) and the cam ring (970352R).
- Mount the cam ring in the Cam ring gauge (ADK1KJ01) according to fig. 1 below.
- Make sure that the aperture setting lever (970353T) fits properly. If not, adjust by loosening the two screws (11772J) and reset. Tighten the screws and secure with safety lacquer.
- Refit the cam ring and the locking ring to the aperture unit.
- Check the fully opened position of the aperture blades by moving the coupling (98282Z) in and out. The blades should disappear completely at that moment when the coupling is fully released.
  If not, adjust by turning the eccentric No.1, fig. 2 below.
  Note! The four screws (12011T) most be slightly untightened before the adjustment.
- Mount the aperture unit in the Adjustment gauge (ADK1KJ08) and check the smallest aperture by using the aperture test pin (ADK1KJ07) according to fig. 3 below.
  The blades should just touch without any resistance.
  If an adjustment is required, turn the eccentric No. 2, fig. 3 below.
  Note! The four screws (12011T) most be slightly untightened before the adjusment.
- Tighten the screws and mount the aperture unit in the lens.

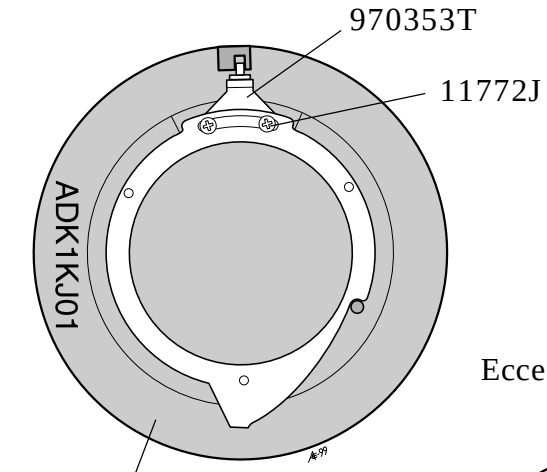


Fig. 1

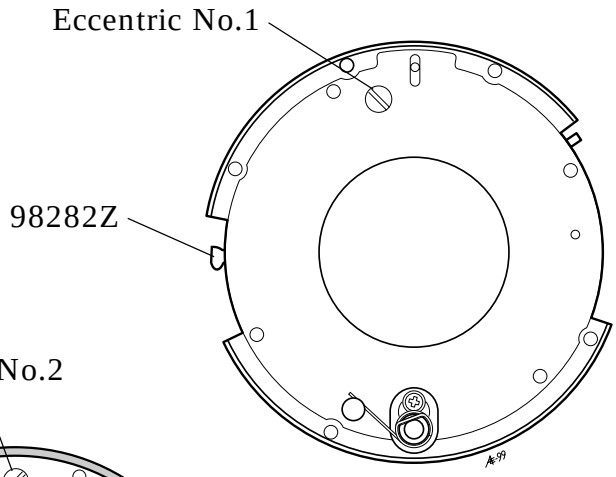


Fig. 2

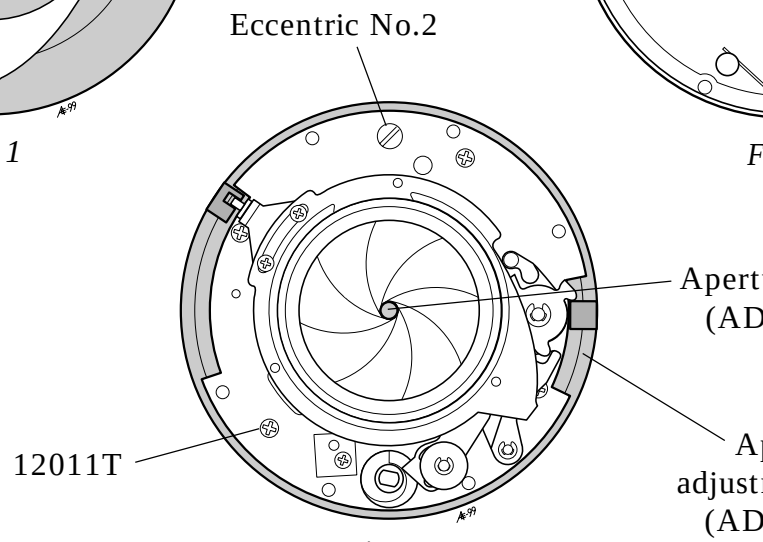
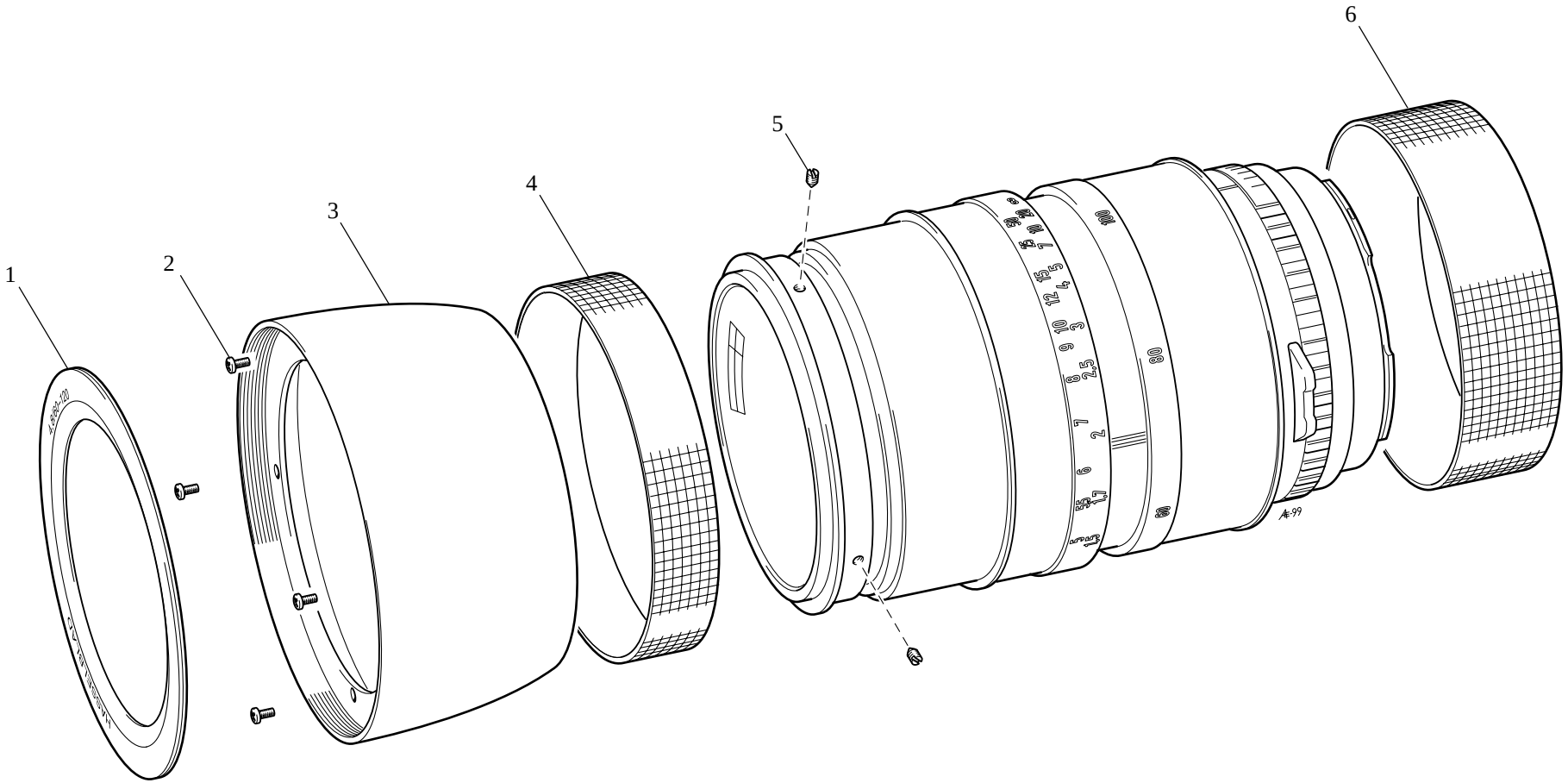


Fig. 3

Zoom lens FE 4.8/60 - 120 mm

Tool No.	Description	Used for
ADK1KJ01	Cam ring gauge	Aperture setting lever adjustment
ADK1KJ03	Spacer mounting gauge	Mounting tool for the bayonet plate and infinity spacers
ADK1KJ07	Aperture test pin	Reference of smallest aperture
ADK1KJ08	Aperture adjustment gauge	Adjustment of aperture
ADK1KJ14	Wrench number ring	Removal of number ring
ADK1KJ15	Wrench rear group	Removal of retaining ring for rear group
ADK1KJ45	Wrench front group	Adjustment of front group infinity position
	Auto collimator	Adjustment of the infinity position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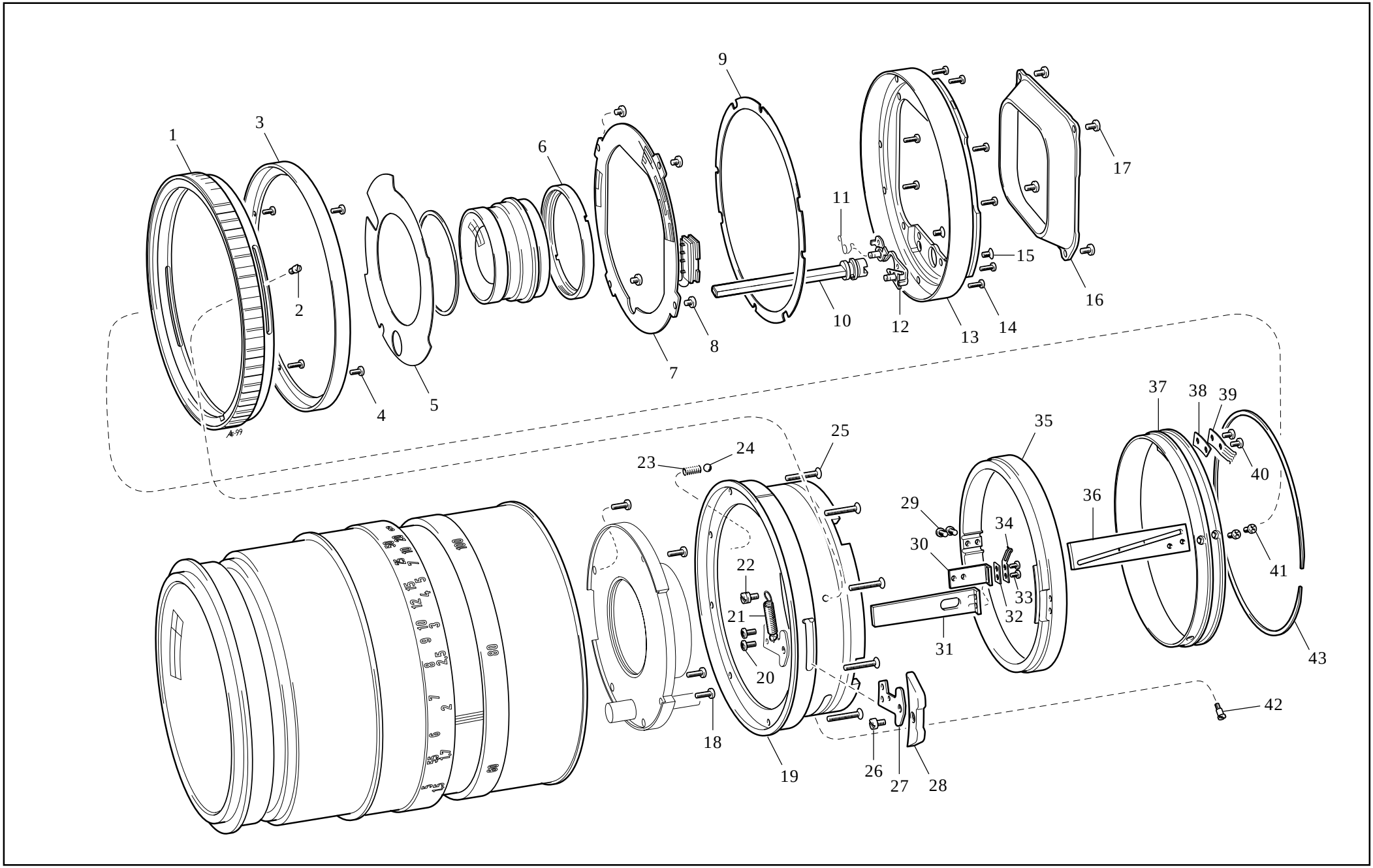
Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	ADK1371J	Number ring	
2	4	11725Q	Screw	
3	1	ADK1368Q	Front tube	
4	1	99673R	Rubber grip, focus	
5	4	71735M	Locking screw	
6	1	99672M	Rubber grip, zoom	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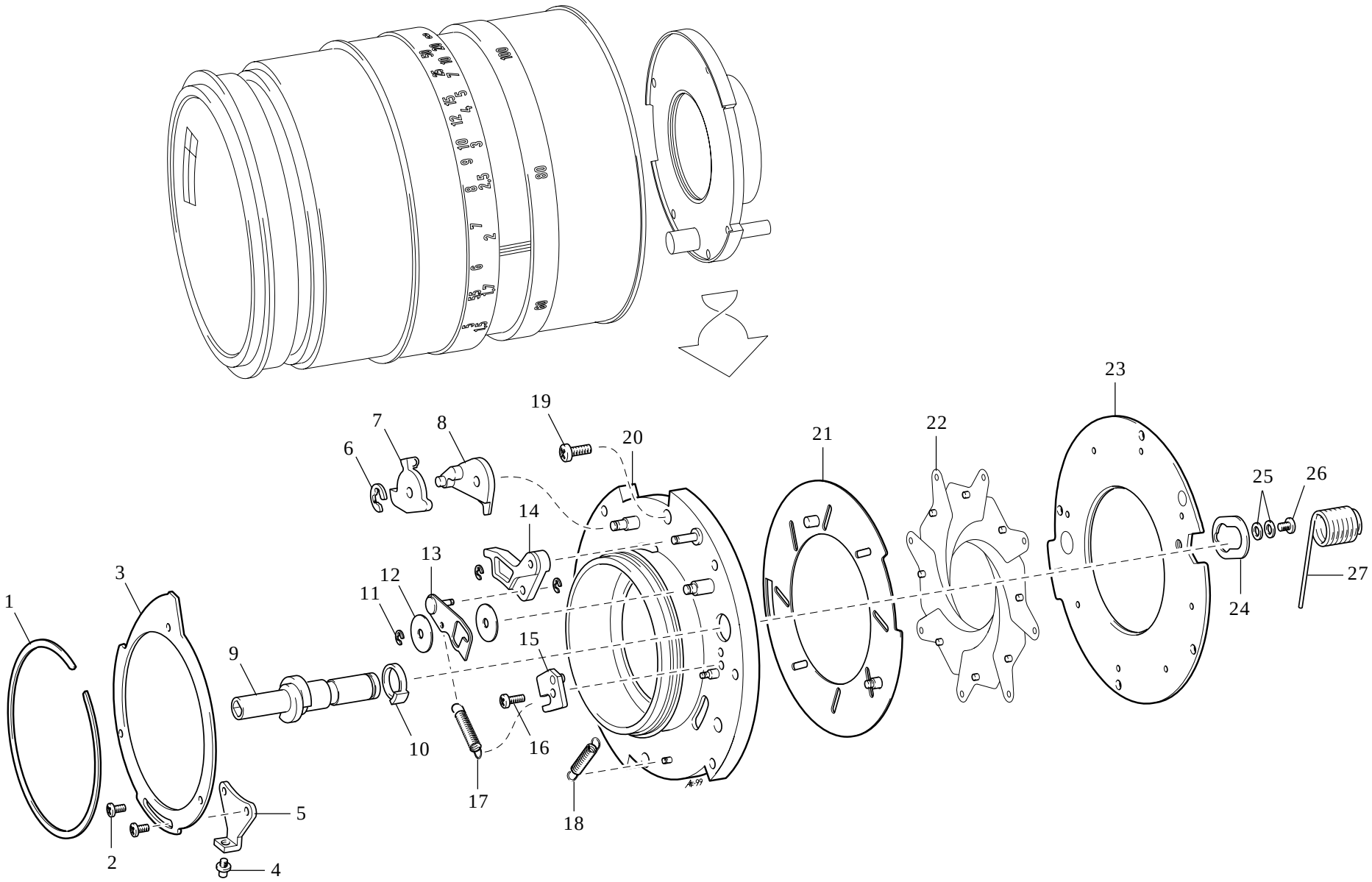
Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	ADK1373L	Aperture ring	
2	2	51491L	Screw	
3	1	ADK1364K	Aperture scale ring	
4	4	11405BL	Screw	
5	1	99671J	Aperture unit cover	
6	1	ADK1090W	Retaining ring	
7	1	ADK1891M	PC-board	
8	4	11445G	Screw	
9	1	96324P	Spacer 1.00 mm	For infinity adjustment (See page 25:2)
		96325S	Spacer 0.50 mm	"
		96326W	Spacer 0.20 mm	"
		96327Z	Spacer 0.10 mm	"
		96328J	Spacer 0.05 mm	"
		96329M	Spacer 0.03 mm	"
10	1	ADK1957P	Key	
11	1	816 304	Spring	
12	1	435 041	Locking mechanism	
13	1	ADK1340V	Bayonet plate	
14	8	11443AW	Screw	
15	2	829 325	Screw	
16	1	ADK1375P	Rear cover	
17	4	11706BP	Screw	
18	4	11718AY	Screw	
19	1	ADK1360Z	Barrel	
20	2	11461AY	Screw	
21	1	94351X	Spring	
22	1	51492Q	Screw	
23	1	94325X	Spring	
24	1	94506J	Stell ball	
25	8	11490M	Screw	
26	1	517085Y	Screw	
27	1	970357J	Stop down plate	
28	1	98283J	Stop down button	
29	2	11706J	Screw	
30	1	970354W	Attachment	
31	1	ADK1388V	Stop down lever	
32	1	99670X	Plate	

Pos No.	Pcs	Spare Part No.	Description	Remark
33	2	11725Q	Screw	
34	1	970347Z	Sliding contact	
35	1	ADK1387T	Stop down ring	
36	1	ADK1372K	Aperture coupling lever	
37	1	ADK1338H	Aperture coupling ring	
38	1	99669P	Plate	
39	1	970346X	Sliding contact	
40	2	11441BR	Screw	
41	2	11725Q	Screw	
42	1	51490H	Screw	
43	1	95259P	Locking ring	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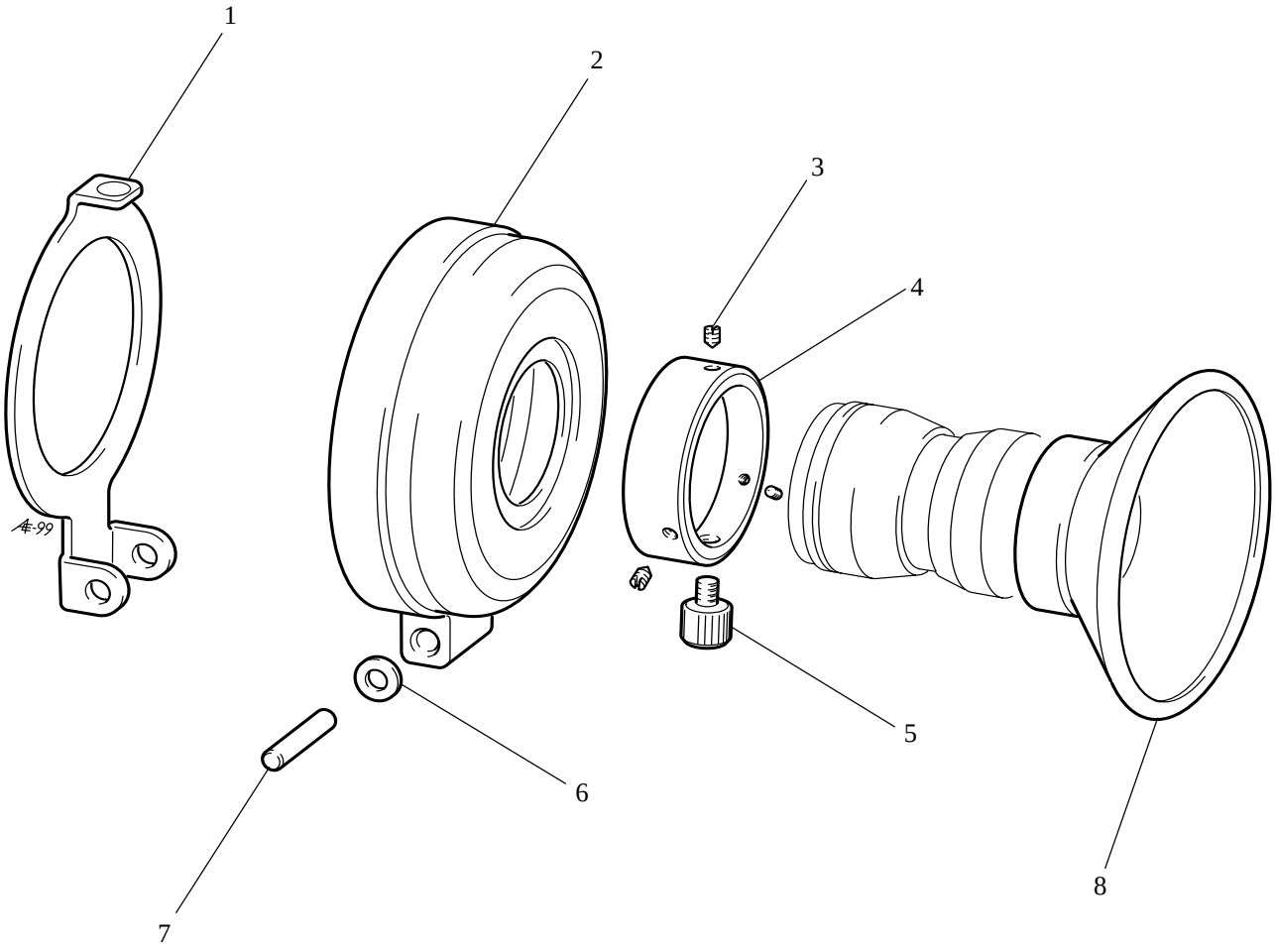
Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	95258K	Locking ring	
2	2	11772J	Screw	
3	1	970352R	Cam ring	
4	1	51489R	Screw	
5	1	970353T	Aperture setting lever	
6	1	95262M	Clip	
7	1	98281W	Coupling	
8	1	98282Z	Coupling	
9	1	98284M	Shaft	
10	1	98285R	Stop ring	
11	3	95078H	Clip	
12	2	95260Z	Washer	
13	1	ADK1968S	Plate	
14	1	98280S	Lever	
15	1	970356G	Stop	
16	1	11772J	Screw	
17	1	94349H	Spring	
18	1	94348Y	Spring	
19	4	12011T	Screw	
20	1	ADK1969T	Diaphragm barrel assembly	
21	1	ADK1924X	Blade ring	
22	1	ADK1903R	Aperture blade set	Set of 8 blades
23	1	ADK1923W	Cover	
24	1	95263R	Washer	0.20 mm (standard)
		95264V	Washer	0.25 mm (for adjustment of play)
		95265Y	Washer	0.30 mm (for adjustment of play)
		95266H	Washer	0.35 mm (for adjustment of play)
25	2	95063Y	Washer	
26	1	11707AQ	Screw	
27	1	94350T	Spring	

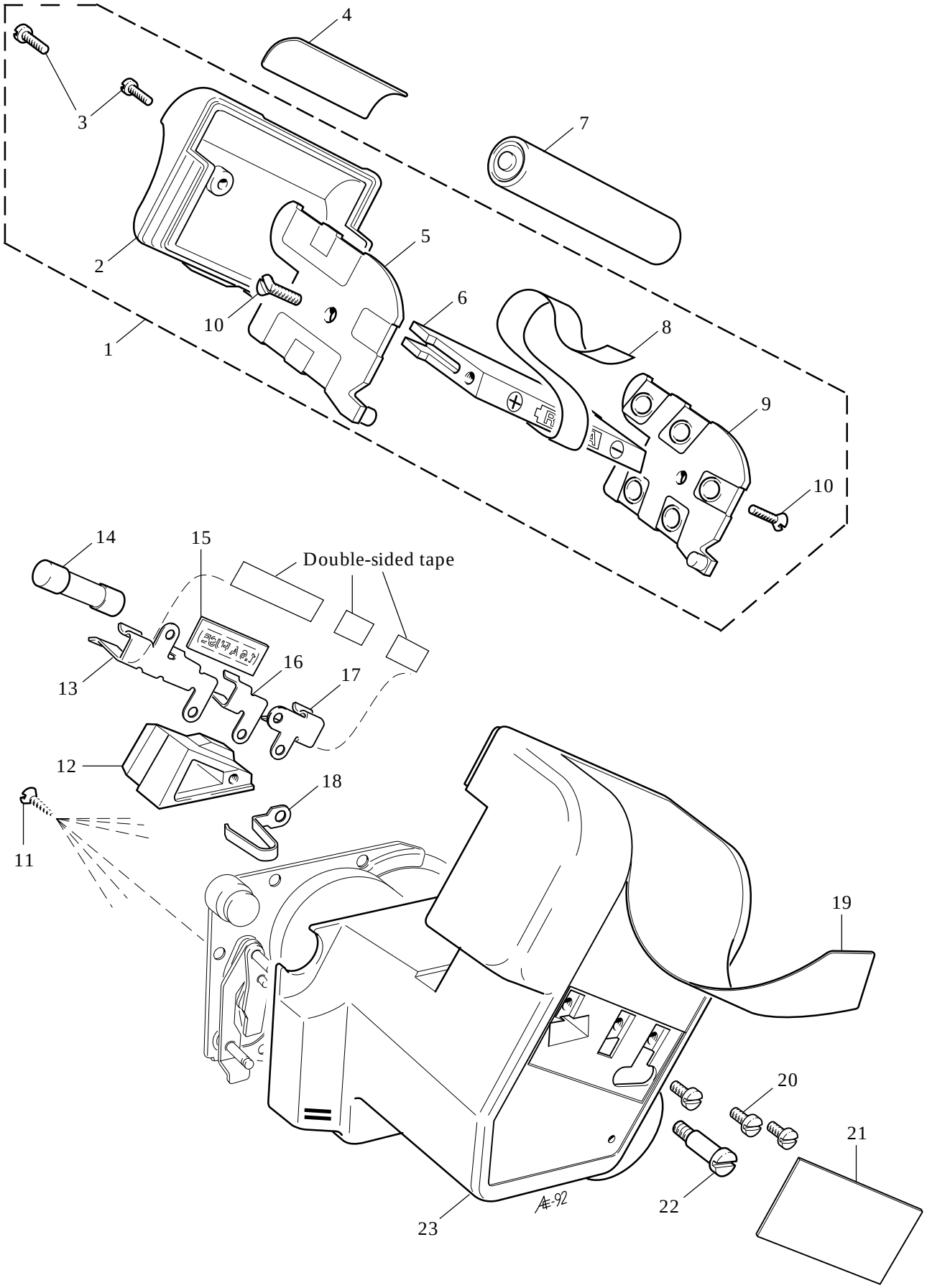
View magnifier



View magnifier

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	418 392	Plate	
2	1	418 390	focusing eyepiece	
3	3	825 001	Screw	
4	1	418 431	Ring	
5	1	418 101	Screw	
6	1	810 650	Washer	
7	1	812 605	Pin	
8	1	418 412	Rubber eyepiece	

Winder F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Double-sided tape
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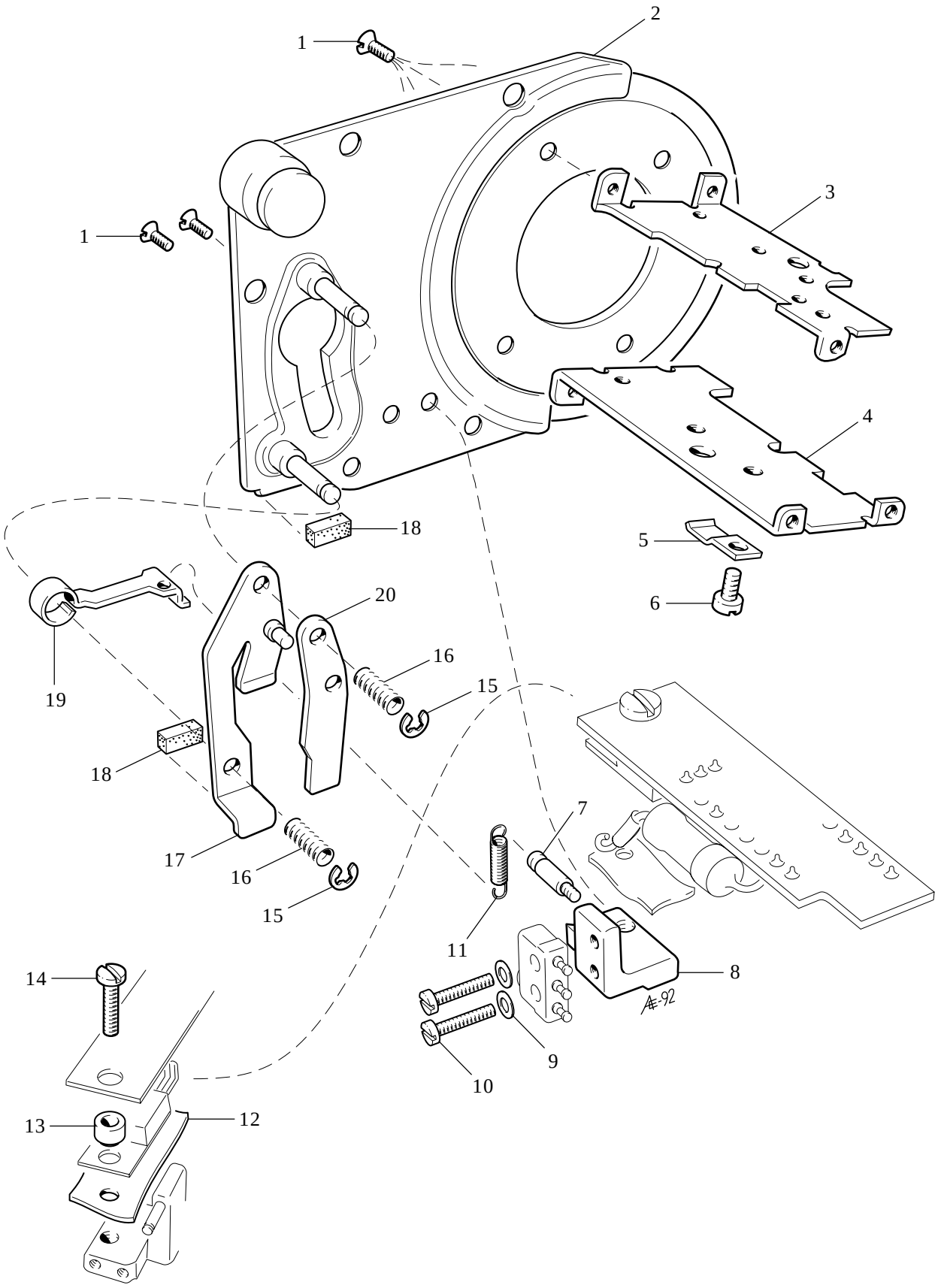
Winder F

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	419 021	Battery compartment	Complete
2	1	419 302	Battery compartment	
3	2	821 663	Screw	
4	1	419 436	Leather	
5	1	419 110	Contact plate, right	
6	1	419 116	Spacer	
7	5		Battery	1.5 volt, size AA
8	1	419 516	Removal strap	
9	1	419 111	Contact plate, left	
10	2	823 650	Screw	
11	6	826 009	Screw	
12	1	419 347	Locking knob	
13	1	419 350	Fuse holder	
14	1	13 593	Fuse	1.6 A, slow-blow
15	1	419 484	Sign plate	
16	1	419 439	Connection plate	
17	1	419 503	Connection plate	
18	1	419 431	Plate spring	
19	1	419 435	Leather	
20	3	821 460	Screw	
21	1	419 434	Cover	
22	1	822 601	Screw	
23	1	419 508	Shell	

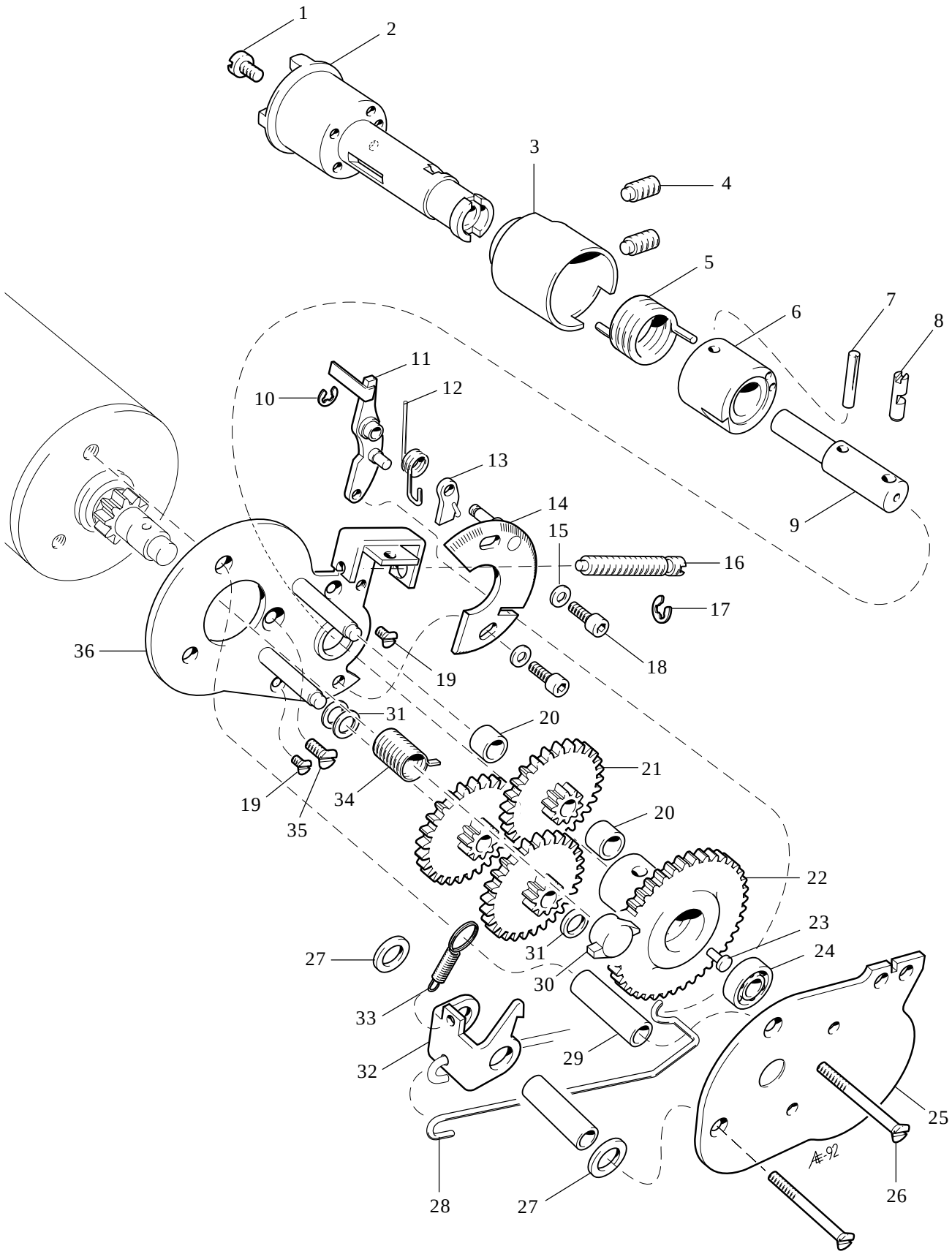
Winder F



Winder F

Pos No.	Pcs	Spare Part No.	Description	Remark
1	6	823 427	Screw	
2	1	419 355	Bayonet plate	
3	1	419 324	Spacer	
4	1	419 321	Spacer	
5	1	12 453	Cable holder	
6	1	820 425	Screw	
7	1	822 461	Screw	
8	1	419 482	Bracket	
9	2	810 405	Washer	
10	2	820 480	Screw	
11	1	814 521	Spring	
12	1	856 050	Insulating plate	
13	1	856 051	Spacer	
14	1	821 819	Screw	
15	2	817 112	Clip	
16	2	815 707	Spring	
17	1	419 117	Locking arm	
18	2	419 459	Seal	
19	1	419 469	Return stop	
20	1	419 470	Catch	

Winder F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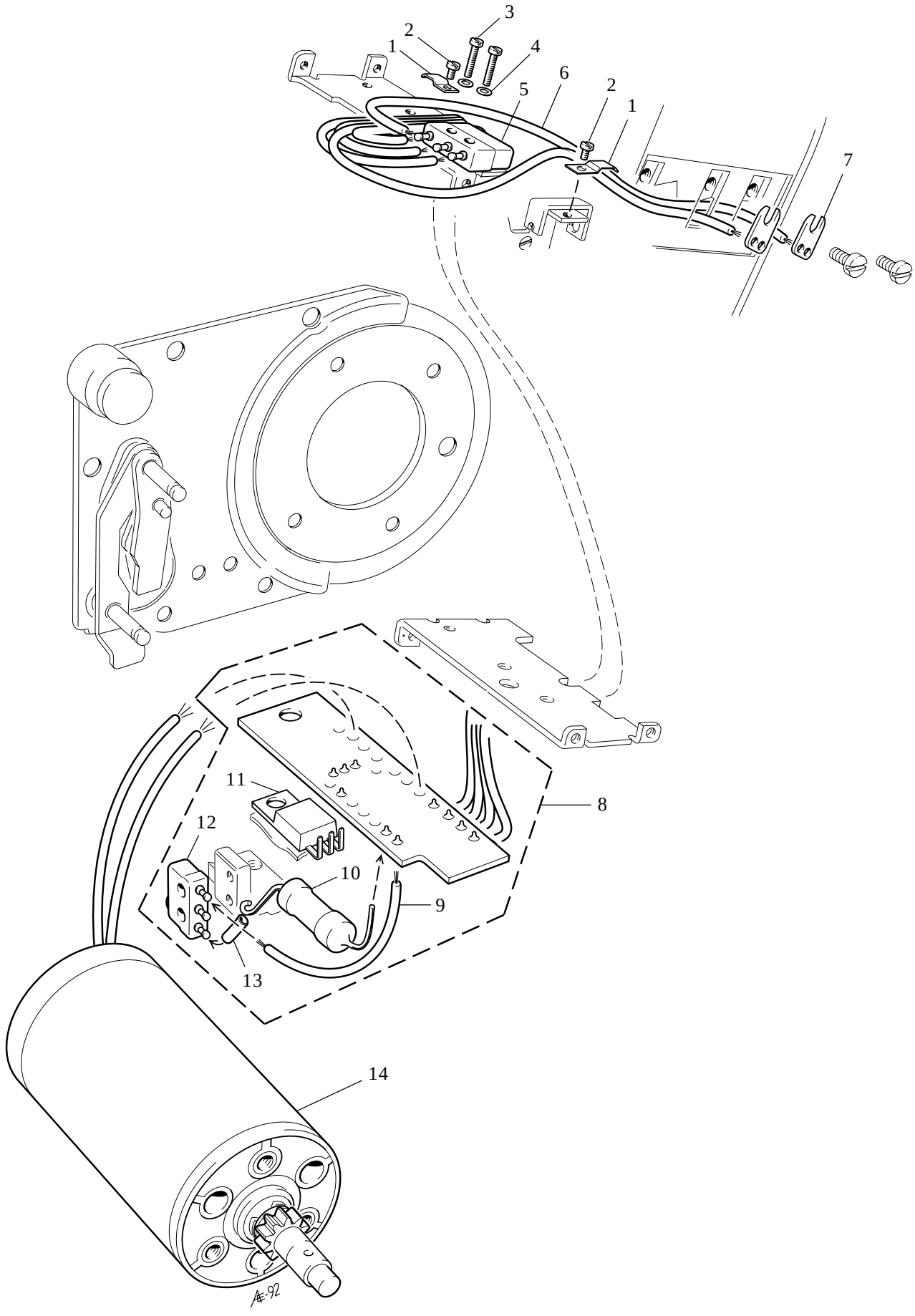
Winder F

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	820 840	Screw	
2	1	419 343	Coupling	
3	1	419 478	Housing	
4	2	419 486	Screw	
5	1	816 933	Start-spring	
6	1	419 401	Drive socket	
7	1	812 306	Pin	
8	1	419 488	Pin	
9	1	419 402	Shaft	
10	1	817 112	Clip	
11	1	419 121	Switch lever	
12	1	816 719	Spring	
13	1	419 475	Pawl	
14	1	419 120	Adjustment plate	
15	2	810 405	Washer	
16	1	419 501	Screw	
17	1	817 115	Clip	
18	2	821 407	Screw	
19	2	823 427	Screw	
20	2	810 623	Spacer	
21	3	419 101	Gear	
22	1	419 407	Gear	
23	1	831 109	Rivet	
24	1	419 420	Ball bearing	
25	1	419 104	Cover plate	
26	2	823 684	Screw	
27	2	810 869	Washer	
28	1	419 483	Link	
29	2	419 418	Spacer	
30	1	419 480	Clutch wing	
31	3	810 624	Washer	
32	1	419 477	Clutch arm	
33	1	814 603	Spring	
34	1	419 485	Friction spring	
35	1	823 650	Screw	
36	1	419 354	Mounting plate	

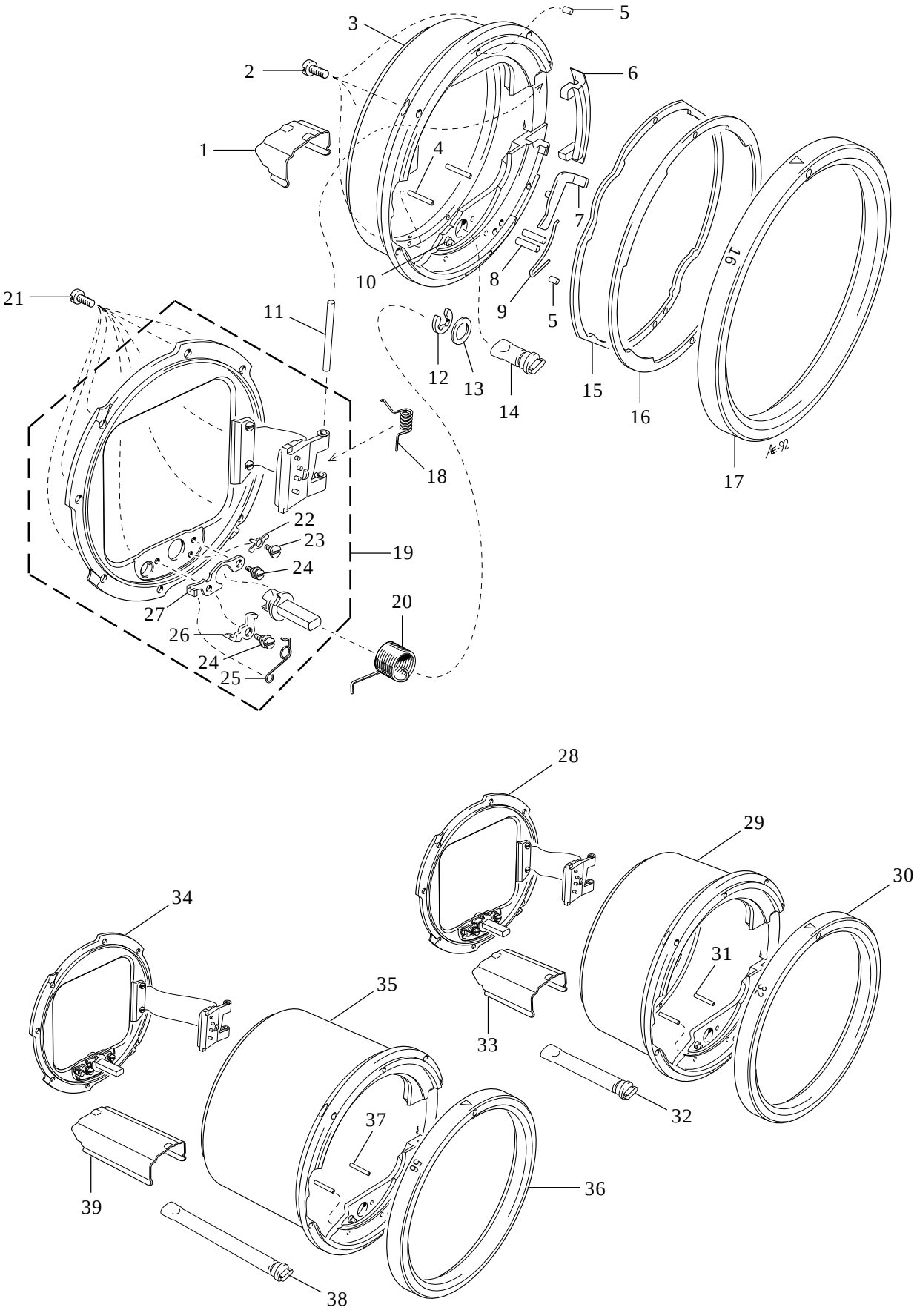
Winder F



Winder F

Pos No.	Pcs	Spare Part No.	Description	Remark
1	2	12 453	Cable holder	
2	2	820 425	Screw	
3	2	820 475	Screw	
4	2	810 405	Washer	
5	1	419 445	Micro switch	
6	1	419 448	Cable	
7	2	419 514	Soldering tag	
8	1	419 353	Circuit board	Complete
9	1	419 491	Cable	
10	1	851 682	Resistor	
11	1	853 020	Transistor	
12	1	419 419	Micro switch	
13	1	419 499	Sleeve	
14	1	419 507	Motor	

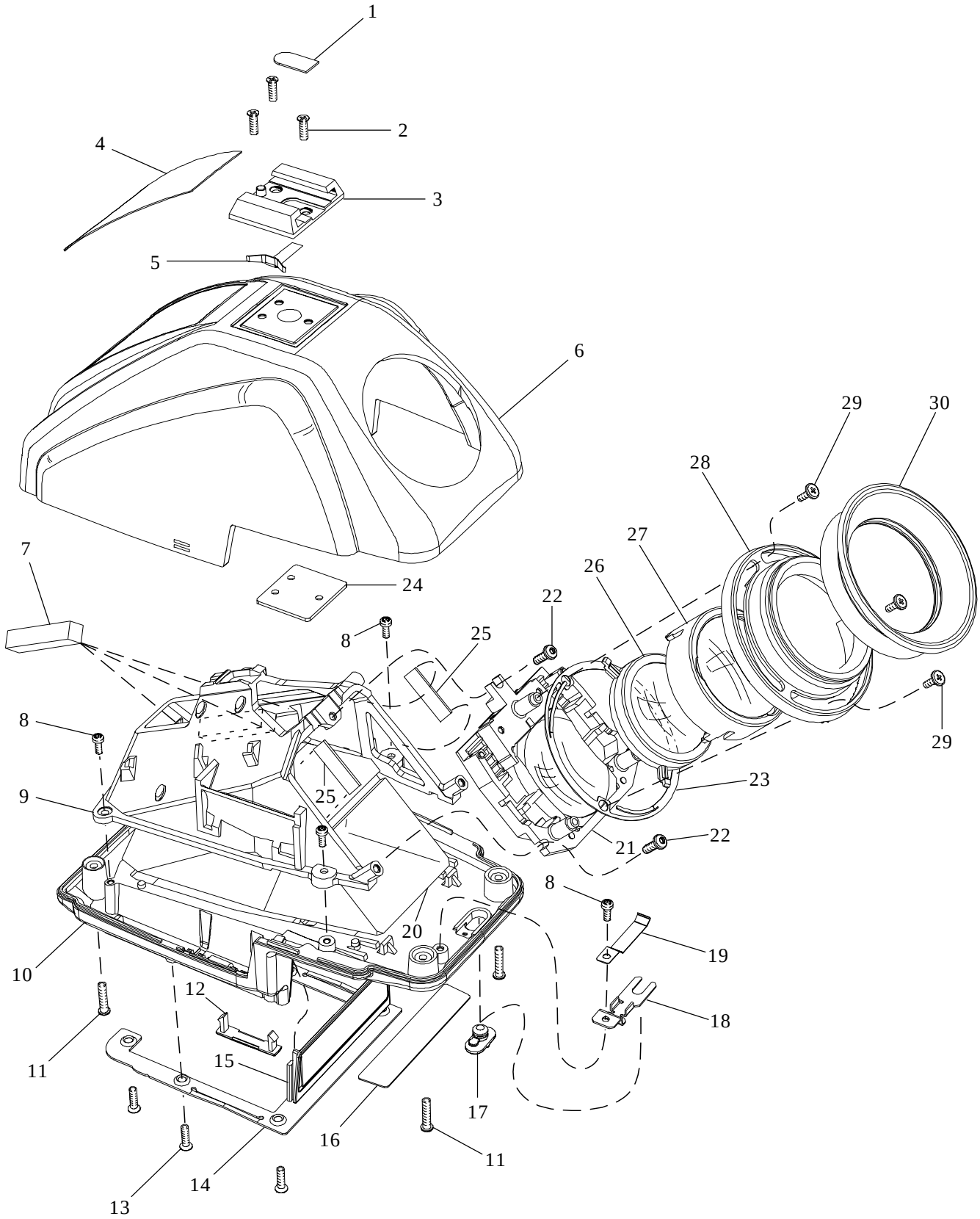
Extension tube 16, 32, 56 TCC



Extension tube 16, 32, 56 TCC

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	420 454	Cover	
2	8	820 440	Screw	
3	1	420 101	Barrel	
4	2	811 101	Pin	
5	2	811 102	Pin	
6	1	420 325	Cover	
7	1	403 111	Catch	
8	2	812 202	Pin	
9	1	816 922	Spring	
10	1	836 204	Pin	
11	1	420 404	Pin	
12	1	817 132	Clip	
13	1	810 850	Washer	For adjustment 810 851 - 853
14	1	420 364	Key	
15	1	21 007	Spring	
16	1	420 402	Bayonet ring	
17	1	420 451	Ring	
18	1	816 928	Spring	
19	1	420 021	Bayonet plate 16	Complete
20	1	816 718	Spring	
21	8	821 302	Screw	
22	1	109950 0399 000	Lever	
23	1	109950 0400 000	Screw	
24	2	109950 0343 000	Screw	
25	1	109950 0114 000	Spring	
26	1	109950 0342 000	Latch	
27	1	109950 0337 000	Plate	
28	1	420 022	Bayonet plate 32	Complete
29	1	420 041	Barrel	
30	1	420 452	Ring	
31	4	811 101	Pin	
32	1	420 365	Key	
33	1	420 455	Cover	
34	1	420 023	Bayonet plate 56	Complete
35	1	420 042	Barrel	
36	1	420 453	Ring	
37	4	811 101	Pin	
38	1	420 366	Key	
39	1	420 456	Cover	

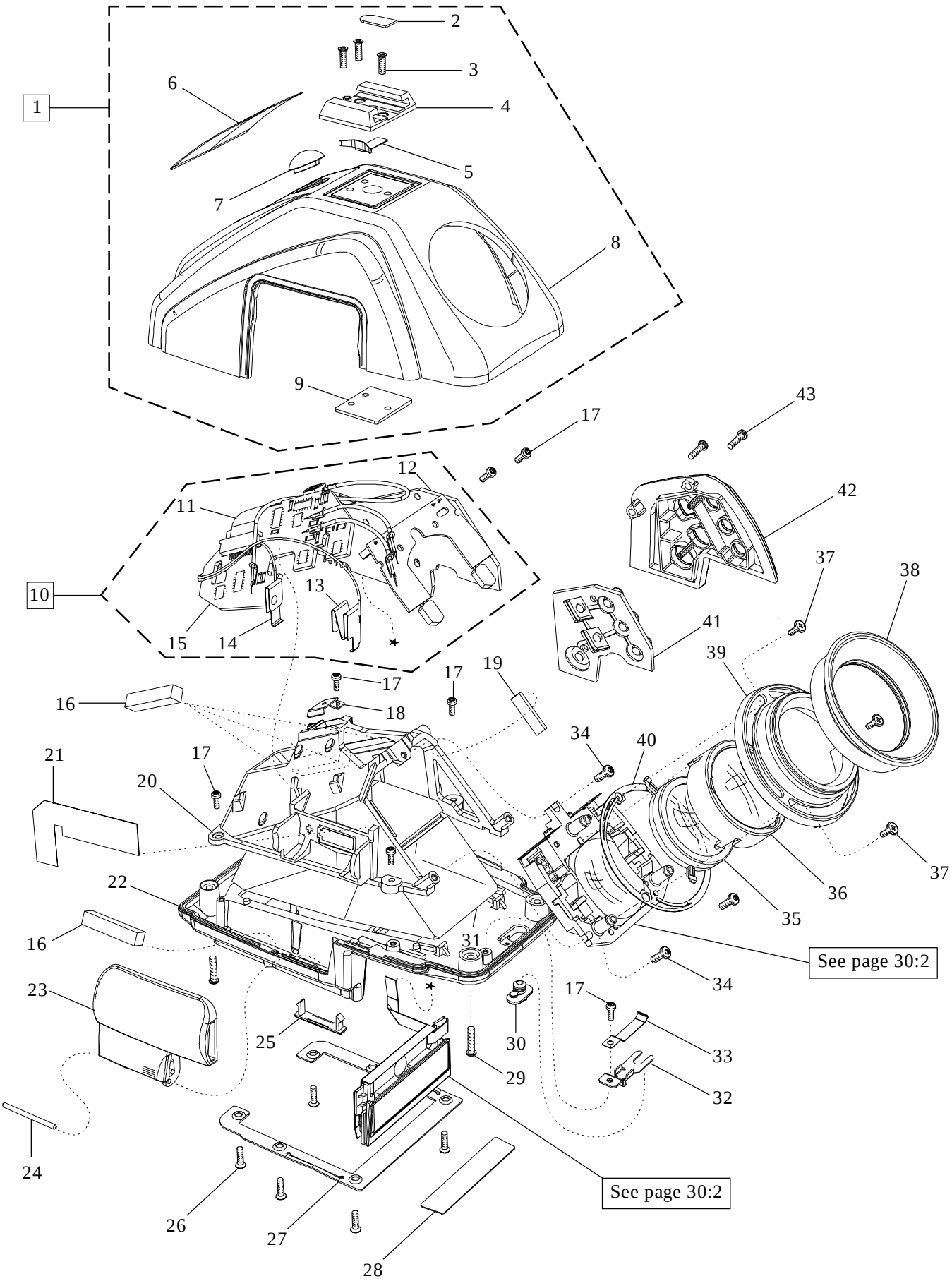
Prism viewfinder PM45



Prism viewfinder PM45

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	405 412	Insulating plate	
2	3	829 660	Screw	
3	1	406 110	Shoe	
4	1	418 359	Leather	
5	1	414 434	Plate spring	
6	1	418 358	Shell	
7	3	414 576	Foam plastic pad	
8	5	826 010	Screw	
9	1	418 410	Prism holder	
10	1	418 355	Frame	
11	4	826 020	Screw	
12	1	414 672	Cover	
13	6	826 022	Screw	
14	1	414 387	Engraved frame	State serial No.
15	1	418 367	Cover	
16	1	418 425	Name plate	
17	1	418 414	Locking knob	
18	1	418 413	Plate	
19	1	418 361	Spring	
20	1	414 328	Prism	
21	1	418 050	Ocular unit, complete	
22	3	826 027	Screw	
23	1	418 348	Plate spring	
24	1	414 403	Plate	
25	2	418 426	Damping pad	
26	1	418 045	Inner lens, complete	
27	1	418 044	Outer lens, complete	
28	1	418 301	Focusing ring	
29	3	826 037	Screw	
30	1	418 350	Eye cup	

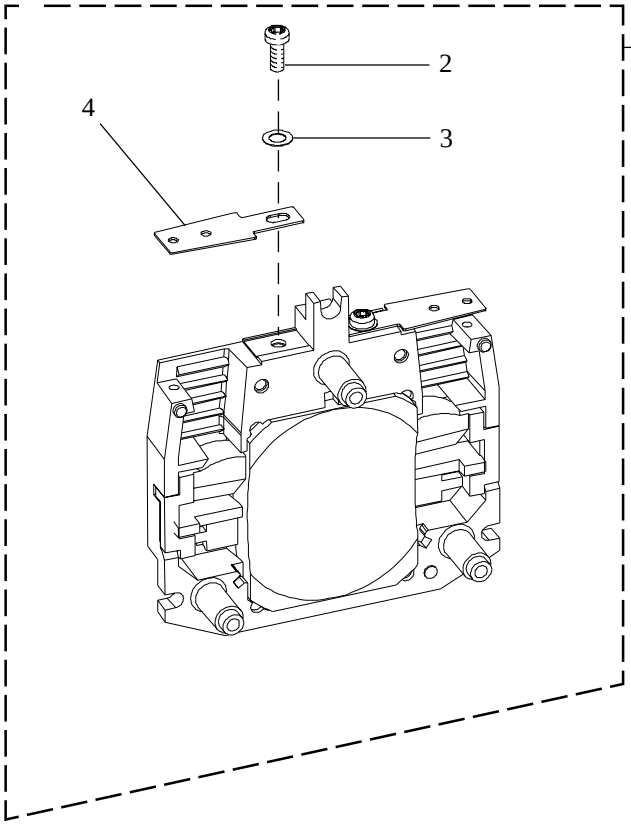
Meter prism viewfinder PME45

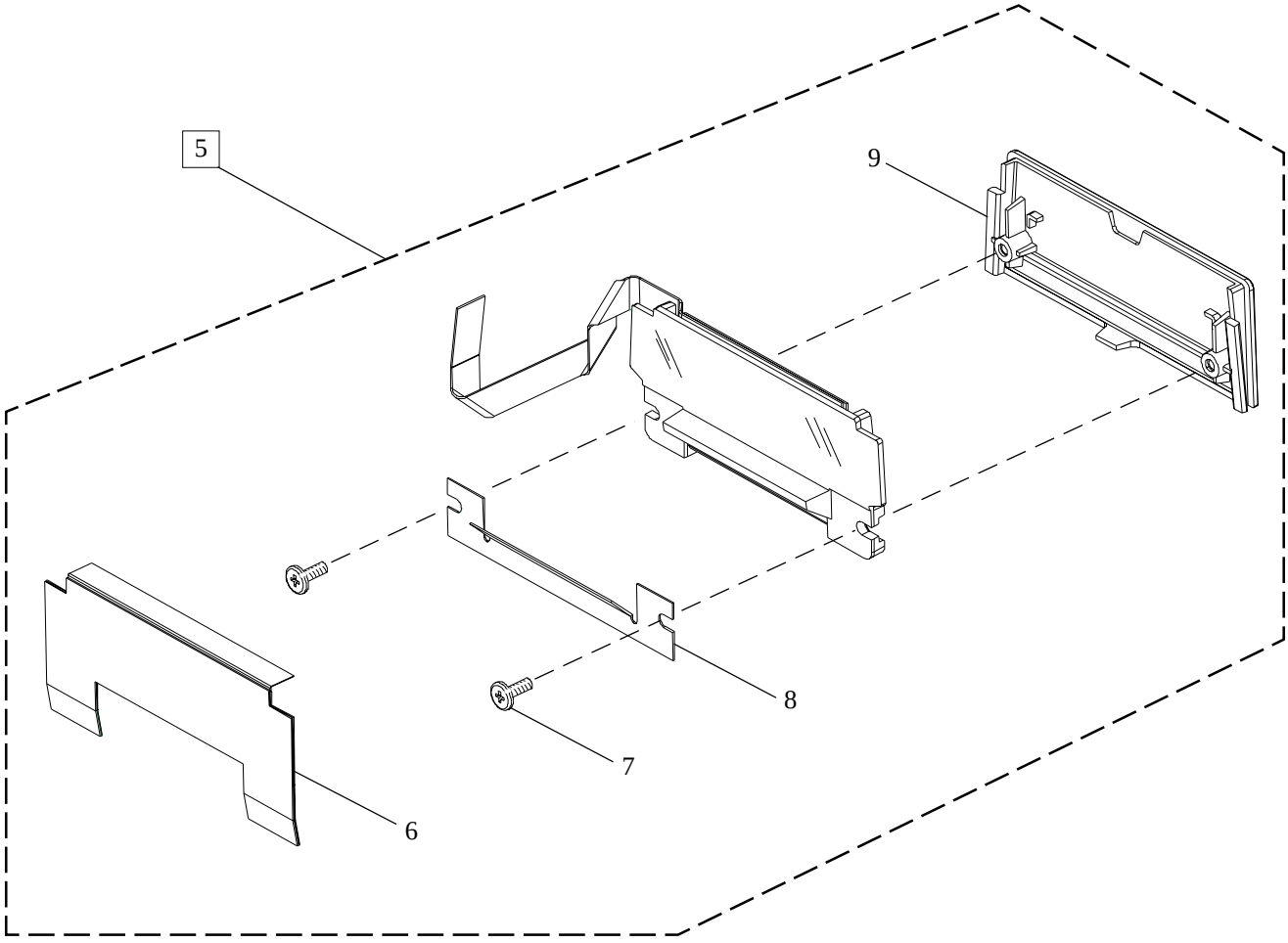


Meter prism viewfinder PME 45

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	418 046	Housing, complete	
2	1	405 412	Insulating plate	
3	3	829 660	Screw	
4	1	406 110	Shoe	
5	1	414 434	Plate spring	
6	1	418 354	Leather	
7	1	418 353	Dome	
8	1	418 352	Housing	
9	1	414 403	Plate	
10	1	418 047	Main PC board, complete	
11	1	418 421	Flex	
12	1	418 704	Circuit board, panel	
13	1	418 401	Contact, -	
14	1	418 403	Contact, +	
15	1	418 721	Circuit board, light reading	
16	4	414 576	Foam plastic pad	
17	8	826 010	Screw	
18	1	418 405	Sensor holder	
19	2	418 426	Damping pad	
20	1	418 304	Prism holder	
21	1	418 349	Cover	
22	1	418 355	Frame	
23	1	418 356	Battery cover	
24	1	418 407	Pin	
25	1	414 672	Cover	
26	6	826 022	Screw	
27	1	414 387	Engraved frame	State serial No.
28	1	418 402	Name plate	
29	4	826 020	Screw	
30	1	418 414	Locking knob	
31	1	414 328	Prism	
32	1	418 413	Plate	
33	1	418 361	Spring	
34	3	826 027	Screw	
35	1	418 045	Inner lens, complete	
36	1	418 044	Outer lens, complete	
37	3	826 037	Screw	
38	1	418 350	Eye cup	
39	1	418 301	Focusing ring	
40	1	418 348	Plate spring	
41	1	418 325	Rubber keypad	
42	1	418 357	Panel	
43	2	826 019	Screw	

Meter prism viewfinder PME45





Meter prism viewfinder PME45

Pos No.	Pcs	Spare Part No.	Description	Remark
1	1	418 041	Sensor unit, complete	
2	2	826 010	Screw	
3	2	810 506	Washer	
4	2	418 345	Spot diaphragm	
5	1	418 049	Display unit, complete	
6	1	418 048	Display cover	
7	2	826 037	Screw	
8	1	418 364	Prism cover	
9	1	418 367	Cover	

Meter prism viewfinder PME45

Link to: VHABSTS

Calibration:

The PME45 has microprocessor controlled electronics. Variable resistors are eliminated. The calibration is done by software writing corrections into an EE-prom.

Therefore the Hasselblad Service Test System and an IBM compatible PC must be used for calibration work.

The procedure is described in the Service Test System user manual.

Tolerances

Exposure meter: Max. deviation ± 0.3 EV.
Current Drain: Max. 50uA.

Cleaning and servicing:

CAUTION! When handling the circuit board a grounded bench mat and a wrist strap must be used to prevent ESD damage

Note! The figures in brackets below refers to the exploded view page 30:1.

Remove the eye cup (38). Open the battery cover (23) and remove the battery. Remove the housing (1) held by four screws (28).

The prism

The prism is held in position by the prism holder (20) which is secured by four Torx T6 screws (17). Unscrew the two screws (43) and remove the panel (42) and the rubber keypad (41). Disconnect the display flex from the panel circuit board (12).
After removal of the above mentioned parts the prism holder (20) including the main PC board, the sensor unit and the eye-piece lenses/mechanism can be removed.
The prism is now accessible for cleaning.

The display

Unscrew the six screws (26) and remove the engraved frame (27). Remove the complete display unit (page 30:2) by pressing it downwards from the frame (22). Ensure that the display flex is not damaged. The display unit is held together by two screws.
Note! The display is not available separately. If it is faulty, a complete display unit must be used.

The main PC board, complete (incl. sensor board)

The main PC board is held in position by the sensor holder (18) and the two Torx T6 screws (17). The panel circuit board (12), the light reading circuit board (15), the flex (11) and the two battery contacts (13 & 14) can be replaced separately.
Note! Whenever the main PC board or any individual circuit boards have been replaced, the viewfinder must be re-calibrated.

Meter prism viewfinder PME45

Spot adjustment:

Note! The figures in brackets below refers to the exploded view page 30:1.

The spot metering system consists of two channels. Each channel has a lens and a metal diaphragm mounted in the sensor unit.
Two sensors (light sensitive diode) are mounted on the sensor board.

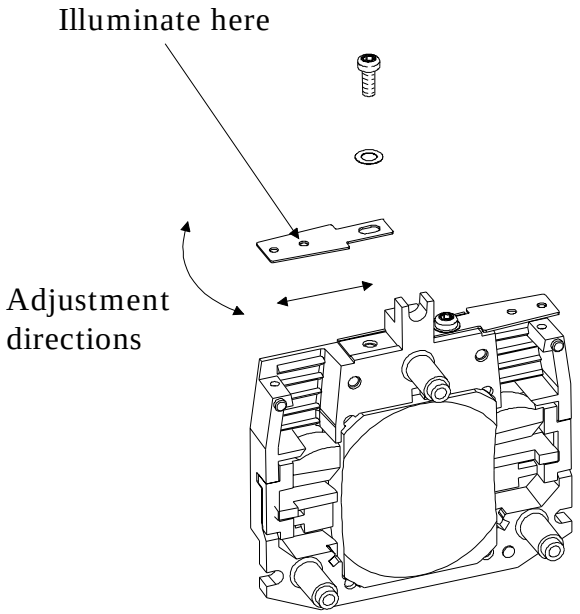
The position of the two diaphragms defines the spot position. Each one should be checked optically before an adjustment. (Instruction below).
Normally there is no need to adjust the spot position except when the sensor unit has been replaced.

Before the spot position can be adjusted, the focusing ring (39) held by the three screws (37), the outer/inner lenses (35 & 36), the plate spring (40) and the sensor board held by the two screws (17) must be removed.

Mount the finder onto a camera body fitted with the focusing screen adapter V-4705. Illuminate each diaphragm (one at the time) from above with a concentrated light beam. The image of the diaphragm circle will be projected on the screen and is visible on the camera mirror. The image should fill the 12 mm screen circle if the spot position is correctly set.

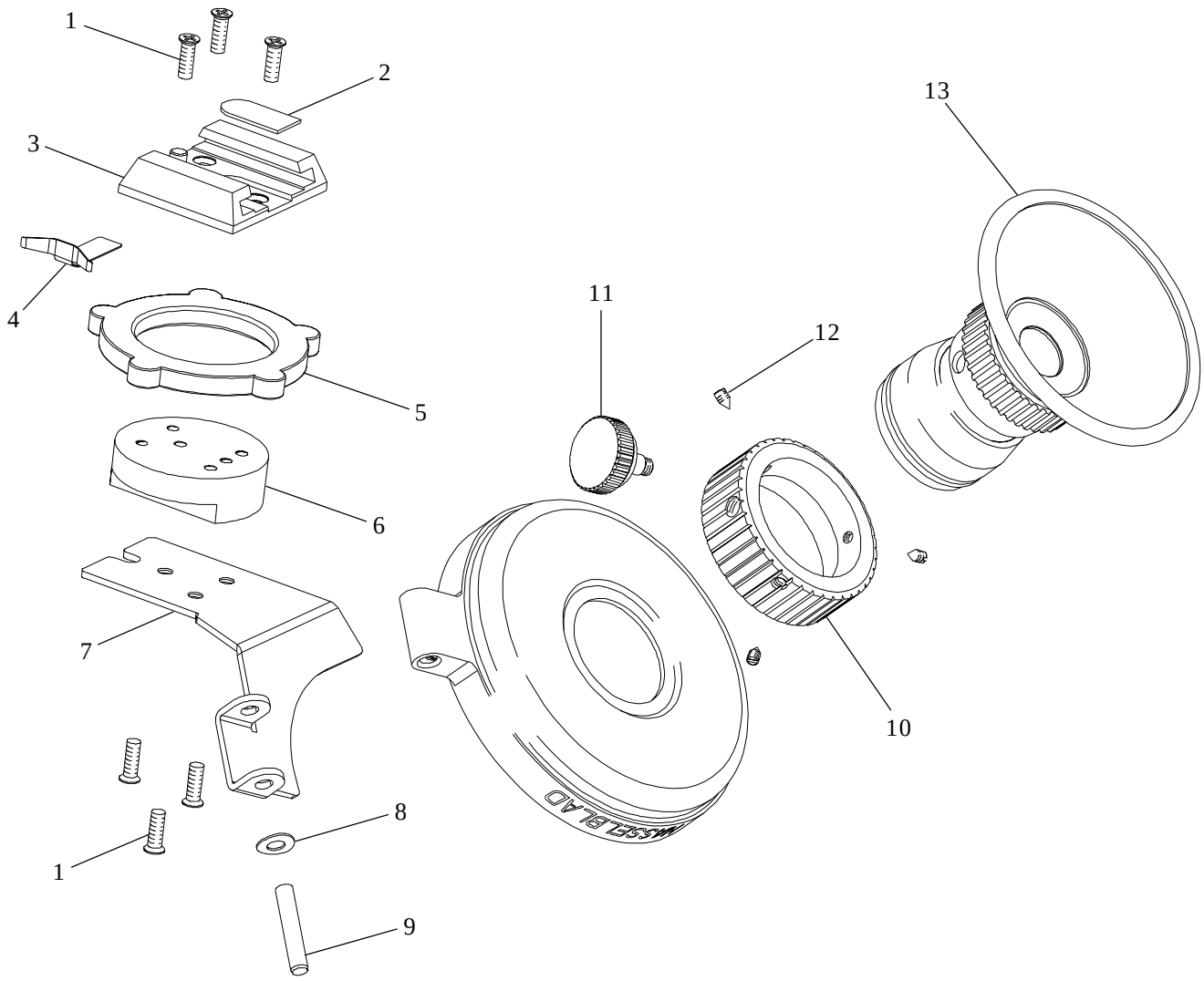
If an adjustment is required, loosen up the screw that holds the spot diaphragm slightly. The diaphragm can now be moved according to the sketch until correct position is achieved.

Tighten the screws and check the spot position again.



Sensor unit 418041

View magnifier PM/PME45



View magnifier PM/PME45

Pos No.	Pcs	Spare Part No.	Description	Remark
1	6	829 660	Screw	
2	1	405 412	Insulating plate	
3	1	406 110	Shoe	
4	1	414 434	Plate spring	
5	1	418 397	Locking nut	
6	1	418 396	Spacer	
7	1	418 395	Plate	
8	1	810 650	Washer	
9	1	812 605	Pin	
10	1	418 431	Locking ring	
11	1	418 101	Locking screw	
12	3	825 001	Screw	
13	1	418 412	Rubber eyepiece	